Lectures
ON
THE SURGICAL TREATMENT OF ANEURISM
IN ITS VARIOUS FORMS.

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LECTURE II.—PART III.

CONTINUING our summary of the table of distal ligatures of the carotid artery, we come to the cases reported as mixed innominate and carotid or subclavian, which are seven in number—viz., Evans's, Morrison's, Rompani's or Vilardebo's, Pirogoff's first case, in which the carotid was judged to be also affected; Mott's, Fergusson's, and Porta's, in which the subclavian was implicated.

Of the first four, allowing the accuracy of the diagnosis, it seems that the first two were cured. The third died from the effects of the operation, but the aneurismal sac was found almost filled with fibrine three weeks after the ligature; and Pirogoff's patient derived so much benefit from the operation that he insisted on leaving the hospital ten weeks after the operation.

Evans's case is so well known and has been so fully commented on by Mr. Guthrie that I need not spend much time on it. The attempt Mr. Guthrie makes to show that the cure which undeniably followed on the operation was due to "inflammation" seems to me quite unsuccessful, and I am much surprised to find this explanation adopted by eminent surgical pathologists. It is true that the explanation is that of Mr. Evans himself, deduced from the acute symptoms which are described as preceding the disappearance of the pulse from the right arm. But the phenomena which attend the impaction of clot in a great vessel were then unknown. Judging from the analogy of cases like those already referred to, in which symptoms of precisely the same nature followed on the impaction of clot, with no possible cause or suggestion of inflammation, and of such preparations as that described by Mr. Lawrence (St. Barth. museum, ser. xiii. 69), which shows clearly how easy it would be for a small piece of clot to be washed into the mouth of the subclavian artery as it leaves the tumour, and how far such an obliteration might ultimately extend, I have no hesitation in ascribing the symptoms to the latter cause. If I understand Mr. Guthrie's (or Mr. Evans's) explanation aright, they conceive that, the ligature having been placed on the artery near the tumour, either the foreign body might have propagated inflammation down the coats of the vessel to the sac, or the disturbance of the cellular tissue near the tumour might have caused it to inflame, and hence the subsequent rupture of the sac. The latter is, indeed, a probable cause of inflammation of the tumour, whatever we may think of the former. But how would either explain the rupture of the aneurism after a year's interval of health? It seems to me clear enough that the ligature produced coagulation of blood in the sac, and that afterwards (the patient living an irregular life and being frequently thrown from his horse in the interval while intoxicated) some accidental violence caused the tumour to suppurate—an event by no means unusual after the cure of aneurism in other ways. At any rate, there is no doubt of the reality of cure, for Dr. Evans of Belper, the nephew of the operator, tells me that the patient lived till the year 1865, thirty-seven years after the operation, dying then of bronchitis at the age of sixty-seven; and he enjoyed good health, and lived a life of great activity and, for some time at any rate, of great irregularity. There was no autopsy, consequently the exact position of the aneurism was not ascertained.

Dr. Sands, of New York, in an interesting paper in the *New York Record* before referred to, speaks of this case as probably aneurism of the carotid only. It is impossible now to decide the question, but it seems to me more likely that Evans was right, since, if we look carefully at the notes, we shall see that the cure of the aneurism did not commence till the symptoms announcing obliteration of the subclavian had set in. I have little doubt therefore that the innominate was really implicated; and the facts I have stated, I think, go far to show that in aneurism of the innominate, after ligature of the carotid, should the mouth of the subclavian be anyhow obliterated, the cure of the aneurism would be the natural result if the patient survives.

In Morrison's case, again, there seems no doubt that a perfect and permanent cure was effected. The man died twenty months after the operation, of disease of the heart, if I understand the account aright. One interesting feature in this case is, that it is almost the only one of the kind in which a very great increase of pulsation is noted as following immediately on the operation. The exact condition of the tumour at the conclusion of treatment is not described, but the man recovered sufficiently to "labour hard at the making of charcoal," and dropped down dead quite suddenly after a walk, twenty months after the operation, being then in good general health. The account of the post mortem examination is as follows:—"The right subclavian artery was traced to its source, at which point it was partially dilated. The arteria innominata was double its ordinary size and studded with spiculæ of ossific matter. The right carotid, from its origin to the point to which the ligature had been applied, was dilated into a sac, which was plugged up with a dense fibrous deposit. The portion of the tumour which was within the chest was much more voluminous than that which rose into the neck. The anterior surface of the thoracic portion of the tumour was firmly adherent to the sternum. There never was a more splendid specimen than this, showing the manner in which nature cures this formidable disease, when assisted by art." The diseased appearances in the heart walls and valves are then described, and to this cardiac mischief the patient's sudden death seems to have been due.

Vilardebo's case, so far as can be judged from the slight notice of it in the *Arch. Gén. de Méd.* (ser. 4, t. xv., 1847, p. 547), seems to go, along with Mr. Lane's case, with the preparation from St. George's Hospital (vi. 133), and with many other of the published cases, to show that coagulation may be produced in the carotid portion of an aneurism involving the innominate and aorta, by ligature or obliteration of the carotid. The notice in the Bulletin of the Acad. de Médecine runs thus:—

"M. Vilardebo communicated a case of aneurism of the right carotid and innominate, operated on after Brasdor's method. In this case, the patient was a negro aged seventy, who had, on the right side of the neck, between the sternal extremity of the clavicle and the lower border of the jaw, an enormous rounded, pulsating tumour. Valsalva's treatment having failed, the common carotid was tied below its bifurcation. The patient died on the twenty-first day.* On post-mortem examination, the carotid was found obliterated at the seat of ligature: the aneurismal sac in the neck had been formed at the expense of this vessel. Stratified layers of fibrine, firm and very adherent, covered all the internal surface of the sac, except at the highest point of the tumour, where the skin was very thin. A small quantity of black viscid blood filled the rest of the cavity of the aneurismal sac. The latter, which was of considerable volume, extended downwards and outwards, resting by its lowest part on the right lung, which it compressed, and in its course it also compressed the subclavian artery. The innominate trunk formed a second tumour, much smaller than the former, springing from the posterior portion of the vessel and extending backwards; it was almost entirely filled with fibrinous concretions, which left in their centre only a very narrow channel to give passage to the blood. The aorta was much dilated."

Of the three cases in which the subclavian artery was implicated in the aneurism, as well as the innominate, by far the most interesting to us is that under Sir W. Fergusson's care, of which the authorities of King's College have been so kind as to lend me the preparation; and this case is made still more valuable by the fact that its history has been related in full, and with a commentary worthy of the importance of the subject, by Sir W. Fergusson. In that excellent

* The case spoken of as Rompani's in Schmidt's Jahrbuch, vol. lxxvii., p. 236, was also a man aged seventy, who died on the twenty-first day, and also had a double aneurismal sac. I have no doubt that the two are identical.

paper Sir W. Fergusson calls attention to the diminution in the size of the tumour which followed on the operation, and to the formation of clot, which, he says, was nearly similar to what is found in aneurismal sacs at about the same period after the Hunterian operation. The carotid alone was tied, partly on account of the much more marked effect produced on the size and circulation in the tumour by distal pressure on that vessel than on the subclavian,* and partly in deference to Mr. Wardrop's opinion, who saw the case, and believed it quite possible that the ligature of the carotid might be perfectly successful, and no further operation be required. It seems, however, that the fact, shown by the preparation, that the aneurismal enlargement affected the subclavian also, renders this very doubtful; and the case also illustrates the additional danger which might beset the attempt in such a case to secure the first part of the subclavian artery.

In Porta's case, as in that above referred to at Boston, U.S., the mistake was made of confounding a dilated condition of arteries, resembling that shown in the drawing from a preparation at St. George's Hospital, for a sacculated aneurism. Otherwise the case is of little interest, for the patient died on the second day after operation.

In Mott's case the improvement was so great that it may be said that the patient was temporarily cured. When the first notes of the case terminate, all tumour and all pulsation above the clavicle had disappeared, and the man had gone home as cured. But the tumour continued to grow internally. The man soon began to suffer from dyspnœa, the consequence of pressure on the trachea, a lobe of the sac having passed between the bifurcation of the trachea and the arch of the aorta, and he died of dyspnœa seven months after the operation. The amount of coagulation in the sac is not described, nor is the account of the tumour sufficiently exact to enable us to judge what had been the real effect of the operation. Mott, in his remarks on the case, regrets that he did not tie the subclavian as well as the carotid. The disappearance of the upper part of the tumour after the ligature of the carotid appears to support the idea that the obliteration of the efferent artery was accompanied by obliteration of the carotid portion of the sac, but that this was insufficient for cure in consequence of the preponderance of the subclavian portion.

We have next four cases in which the aneurism was either purely aortic, or aortic and innominate, and for which the right carotid was tied—namely, O'Shaughnessy's, Campbell's, Knowles's, and Hutchinson's, of Brooklyn. In the first case no time was given to test the effect of the ligature, galvano-puncture being resorted to only a few days afterwards with fatal results. In Campbell's case there was a considerable amount of coagulum in the sac, but the aorta was extensively diseased, and the case was probably incurable. Hutchinson's case is both curious and interesting. The operation was undertaken as one of ligature of both arteries. But no pulsating vessel could be found in the situation of the subclavian, and after death it was proved that the substance around which the ligature was placed was not that artery. The subclavian was obliterated; the operation on the carotid did not check the growth of the aneurism (as I believe it would have done had the aneurism been purely innominate), and the patient died in six weeks of dyspnœa.

The table is completed by seven cases in which the left carotid has been tied for aortic aneurism. These cases belong to Rigen, Tillanus, Montgomery, S. Lane, Pirogoff (two), and Heath.

In all these cases I think there is clear evidence that the operation was beneficial, except in Pirogoff's last case, where the patient died from the direct effects of the ligature upon the brain.

The cases of Tillanus and Rigen are those which are best known and most universally quoted in proof of the proposition that aneurisms affecting the arch of the aorta may be sometimes, at any rate, checked in their progress by ligature of the left carotid.

The following is what Velpeau† says about these cases:—"It would appear *a priori* that ligature in the hyoid region might suffice in all the cases in which the aneurism occupies the carotid only; but that it would be necessary to join to this the ligature of the subclavian when the innominate trunk is itself affected. Now M. Kerst, of Utrecht, has communicated to me two facts, which, with those of Evans and Montgomery, prove incontestably that the ligature of the carotid only may arrest the development not only of aneurisms of the innominate, but also of those of the arch of the aorta.

"A man was admitted into the civil hospital at Amsterdam with an aneurism projecting above the sternum. M. Tillanus, believing it to be an aneurism of the left carotid, tied that artery a little higher up. The patient recovered. Five months afterwards he died suddenly. The aneurism, which occupied the arch of the aorta itself, was completely filled with a white coagulum. The preparation is preserved in the Pathological Museum at Amsterdam.

"In the other case the aneurism appeared in the same situation, and was on the point of bursting. Believing also in this case that the aneurism was of the left carotid artery, M. Rigen, of Amsterdam, tied this artery a few inches higher up, on Feb. 21st, 1829. The grave symptoms disappeared and the tumour diminished considerably. On May 9th of the following year it became necessary to operate on this man for strangulated hernia; but he died on June 13th with symptoms of spasm or asthma. The autopsy showed that the aneurism affected the arch of the aorta between the left carotid and the innominate. As in M. Tillanus' case, it was filled with white coagulum and considerably diminished in size."

After relating the cases of Tillanus and Rigen, Velpeau goes on to say:—"We see then from this that ligature of the carotid on the method of Brasdor deserves trial even in cases where the aneurism appears to be prolonged down to the aorta. I must, however, still doubt whether the chances of success would not be notably increased by the ligature, simultaneous or consecutive, of the subclavian; only there remains the doubt whether the internal mammary, vertebral, thyroid axis, &c., would not keep up the circulation in the root of this vessel, and thus destroy all the effect of the ligature upon the aneurismal sac."

Montgomery's case has been very fully detailed and commented upon by Mr. Guthrie, and he uses it as another argument, in addition to Evans's, to prove that the distal ligature, if it cures, cures by producing inflammation in the sac. It happens singularly that Evans's and Montgomery's cases, which were alone known to Mr. Guthrie, are the only cases, except that of Hutton, out of the whole twenty-nine operations in this class in which this event followed. So dangerous is it to generalise upon the result of one or two cases. Whatever else may be thought of Montgomery's case, there can be no doubt that the operation was followed by a great subsidence of the tumour.

In Pirogoff's case which survived, the operation was followed by striking relief to the dyspnœa from which the patient had suffered, and some diminution in the tension and pulsation of the tumour. The patient quitted the hospital relieved in about ten weeks. We can hardly doubt that in this case, as in Mr. S. Lane's, the carotid portion of the sac was consolidated, and the tumour thus diminished and its growth stopped for the time.

Mr. Lane's case is usually quoted as one of aneurism of the left carotid, since the aortic portion of the sac was imperceptible before the operation, and it was, therefore, diagnosed as a carotid aneurism, but the account in the last edition of Cooper's Surgical Dictionary (vol. i., p. 215) removes all ambiguity. The preparation has unfortunately been lost; but Mr. Lane's description of the post-mortem examination states distinctly that the patient died on the sixty-eighth day after the operation from the increased growth of the lower or aortic portion of the sac and its rupture into the left lung, while the upper or carotid portion was entirely consolidated. The aorta in this case was not itself dilated, but the opening of the carotid artery from the aorta was; and it is quite evident that it was the entrance of this great stream of aortic blood into the sac which hindered the consolidation of its lower portion, and prevented the complete success of the operation.

Mr. Heath's case is the latest in which the operation has been practised. It is not at present completed, but as far as it has gone it furnishes an ample justification for the course pursued. The relief obtained by the operation was

* It may be remarked that in this case, as in that of my patient, in whom the double distal ligature was performed, the distal pressure produced not merely a diminution in the size of the tumour and the strength of its pulsation, but also a remarkable retardation in its rate of pulsation.

† Nouveaux Eléments de Méd. Op., 2nd ed., 1839, vol. ii., pp. 243-4.

great and immediate, and there were no unpleasant symptoms whatever from the operation. As the patient happens to be in town, I have asked him, with the kind consent of Dr. Cockle, to attend here in order that any gentleman who wishes to examine him may satisfy himself from the man's own statement of the reality of the relief which the operation produced. He can now walk fourteen miles in one day, and feels perfectly well. The left side of the chest is quite flat. The tumour is felt pulsating in the episternal notch, and the right thoracic parietes bulge somewhat forwards, but the disease is plainly receding. The patient was a man aged forty-eight, a farm labourer from Cambridgeshire, who came under Dr. Cockle's care in January, 1872. He had experienced pain, for four or five years, in the right side of the head, neck, shoulder, and chest, attributed to rheumatism. In April, 1871, he noticed a pulsating swelling in the hollow of his neck, and was in Addenbrooke's Hospital for two months without relief. After Christmas, 1871, he was compelled to give up work, from the increasing pain in the shoulder and neck. He presented marked symptoms of aneurism of the ascending and transverse portions of the arch of the aorta. There was displacement of the right sterno-clavicular articulation, with projection of the right and upper portion of the sternum; and the episternal notch was filled by a pulsating swelling. There was a strongly heaving and expansile impulse over the whole of the swelling, and marked dulness on percussion existed over the whole area of the tumour. No bruit could be heard, but a double concussion-shock was felt. The respiratory murmur was feeble or absent over the upper portion of the right lung. The heart-sounds were dull and muffled, but without appreciable murmur. There was no cough or difficulty of deglutition. The left radial pulse was decidedly feebler than the right; and the left pupil was much dilated, and the left eye congested. On exertion he complained of shortness of breath, palpitation, and pain. Mr. Heath tied the left carotid artery above the omo-hyoid on February 26th, 1872. Carbolised catgut was used for the ligature, and the wound was covered with cotton-wool. No constitutional disturbance followed. Within forty-eight hours the patient could lie and sleep on his right side, which he had been unable to do before. The left pupil became natural, and the congestion of the eye disappeared. On the eighth day, when the dressings were removed for the first time, the wound was found completely healed by the first intention. Since the operation, the condition of the patient has in every way improved, the chest having become flatter, and the heaving impulse greatly diminished. He was free from all pain or inconvenience.

Our table concludes with two cases in which the subclavian artery has been tied in its third part for innominate aneurism. The first is the well-known case of Mrs. Denmark, operated on by Wardrop. The patient had very clear symptoms of innominate aneurism, and was suffering from most distressing feelings of impending suffocation. The pulse in the branches of the right carotid was imperceptible, and it was thought that there was no pulsation in the trunk of that artery, though on this the report is less positive. The carotid being, therefore, taken to be obstructed, Mr. Wardrop thought it well to tie the right subclavian in its third part on July 6th, 1827. "There was an immediate relief in her breathing, which now became free and tranquil, and this change was more striking as during the preceding twenty-four hours she had suffered an unusual degree of suffocating dyspnœa.....The peculiar sensations which she complained of in her head were also removed." The pulsation of the tumour was also thought to be diminished, though its size was not. On the ninth day a pulsation became perceptible in the carotid and temporal arteries, which Wardrop referred with great probability to a diminution of the size of the tumour, and consequent liberation of that vessel from pressure. The ligature came away on the twenty-second day, by which time the tumour was "greatly reduced in size." In the sequel she remained for some time with hardly a trace of the former disease, insomuch that a surgeon who saw her at the end of August declared that unless he had previously been acquainted with the nature of the case he should not have known that any aneurism existed. At the end of the year she suffered severely from bronchitis, and was treated on the strongly antiphlogistic plan. In August, 1828, Mr. Wardrop makes the following note on this head: "It is important to observe that from the commencement of my attendance on this patient she has now been bled above fifty times, to an extent at each operation seldom less than a pint of blood, and frequently to nearly double that quantity. Since the ligature of the artery she has been restricted to about an ounce of solid meat daily and twelve ounces of fluid. Besides these, however, she has frequently taken a very small quantity of bread-and-butter, and occasionally a little fruit. No tumour was now perceptible in the situation of the aneurism, but a hardness was perceived there from its condensation. She had had transient œdema of the feet, but this had subsided, and she takes exercise in the open air daily." This note was made on Sept. 9th, 1828. The patient survived till Sept. 13th, 1829, when she died of dropsy, and previous to her death the aneurism had enlarged above the sternum and up the root of the right carotid artery. Wardrop proposed to tie the right carotid, but was dissuaded, apparently, by some consultants, who thought the diagnosis wrong. However, on post-mortem examination, the tumour turned out to be an innominate aneurism. "The clavicular and tracheal portions of the sac were filled with firm coagulum, the cavity of the aneurism being chiefly limited to the division between the sternal and tracheal portions, and was about the size of a walnut. The layers of the coagulum were remarkably firm, and of a pale colour, being of a softer consistence and darker colour as they approached the boundaries of the aneurismal cavity." The aorta was healthy.

As far as this case goes there seems no possibility of denying that the patient derived benefit from the operation, though the possible effect of the rigid depletion before and after the operation must not be left out of sight. It is greatly to be regretted that the carotid was not tied, for the post-mortem examination seems to have proved that the subclavian portion of the sac was obliterated, and if she had survived the ligature of the carotid, there would have been a good prospect of the permanent cure of the aneurism as in Mr. Fearn's case. It is also much to be regretted that Mr. Wardrop did not fulfil the intention which he expressed in his report of this case, of presenting this very valuable preparation to the museum of this College.

The only other case in which the subclavian has been tied on the distal side of an innominate aneurism is that by Broca, of which full details are given in the "System of Surgery," and of which it will be sufficient to say that the benefit from the operation was well marked, and that the patient's death was produced by a disease which seems to have been quite unconnected with the aneurism.

There is a case on record (by Laugier[*]), in which he tied the axillary for the cure of innominate aneurism; but this is not an example which anyone, I think, would now follow. The case is one of great interest in this respect that the carotid artery was obliterated, and the subclavian healthy. The patient died from cough and dyspnœa, and after death extensive disease of the vertebræ was found. As far as the account of the tumour enables us to judge, it is very possible that a ligature placed on the subclavian at an earlier period, before the vertebræ were implicated, might have been successful.

OBSERVATIONS ON THE

FOUR CHIEF ORIFICES OF THE HEART.

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IN a paper which I had the honour of reading before the Royal Society in the early part of 1870, I attempted to establish the existence of a law which determines the relative magnitude of the areas of the four chief openings of the heart, and I also sought to show the reasons why the orifices differed from each other in size. I took as the basis of my calculations the facts given by Drs. Peacock Reid, and others, and I assumed—1st, that the four openings during the time the blood traverses them are circular in form; and 2nd, that the area of each orifice is unchanged—constant—during systole and diastole. I propose

[*] THE LANCET, 1834-5, vol. i., p. 691.

in this communication to show that these assumptions were correct.

1st. All anatomical writers agree in describing the orifices of the aorta and pulmonary artery to be circular in circumference. I have, therefore, only to prove that the tricuspid and mitral apertures are also circular, although stated in anatomical works to be elliptic in form. And in the first place, I may recall the fact that all the canals of the body and all the outlets through which fluid has to pass are (with a few exceptions) circular in form, for the obvious reason that the *largest quantity* of fluid can pass with the *least amount* of friction through a circular opening, and therefore with the least expenditure of power on the part of the organ propelling or expelling the fluid. If, for instance, we compare the perimeters of a square, ellipse, and circle, each of which contains an area of one square inch, we shall find that they are—4, 3·85, and 3·54 inches respectively; the ellipse being taken in this case for the sake of example, as having its long axis double the length of the short axis, or as 1·6 to ·8 inch. An elliptic mitral opening (on the above supposition of the length of the axes) containing one square inch would have a perimeter of ·31, or nearly one-third of an inch longer than the perimeter of a mitral opening containing exactly the same area, but of a circular form. The openings of the two different forms would be of exactly the same size in area, but the circumferences bounding these equal areas would be very different in length. The elliptic would evidently expose a much larger frictional surface, and be therefore less favourable for the transit of blood than an opening of an exactly circular form enclosing the same area within its circumference. It would be interesting to discover why the longitudinal and straight sinuses in the cranium have a triangular form. It is clear that the arrangement is not merely for the purpose of packing, for we find that the small veins which empty themselves into the longitudinal sinus enter that channel at an angle, and in a direction *opposed* to the current which flows through it, showing, as it were, that great velocity is not required in the stream of the sinus. The aortic and pulmonic apertures are admitted, as I have already stated, on all hands to be circular in form. It may be, therefore, fairly asked why Nature, which economises force in all parts of the body, should adopt *oval* apertures for the admission, and *circular* openings for the exit, of the blood of the ventricles, especially as the incoming tricuspid and mitral currents possess small velocities and momenta, and require every favourable condition possible to secure their reception into their respective ventricles during the period of diastole.

Again, whatever may be the forms of these orifices as observed post mortem, when the heart is lax and empty, there must be, I believe, every probability that volumes of blood which traverse them *during life*, and exert centrifugal pressure on their circumferences, will inevitably tend to throw the *effective* openings into a circular shape. That such is the case is well seen in Dr. Pettigrew's specimen, marked 929 B, in the museum of the Royal College of Surgeons. The chambers of the heart in this specimen have been filled with fluid plaster-of-Paris, which, in hardening, has preserved the circular form of the orifices. Specimen 928 C in the same museum clearly exhibits the naturally circular openings of the tricuspid and mitral orifices in the heart of the Bison Europæus. The walls of the apertures are so thick and firm that they preserve their circular shape post mortem.

If we stuff a sheep's or bullock's heart with cotton and boil it for many hours, and detach—as we can most readily—the auricles from the ventricles, we shall find in this rude experiment the apertures to be very nearly circular in shape.

Lastly, in employing the spherical balls devised by Dr. Peacock for the measurement of the orifices, the apertures are found to be well fitted by them.

These considerations will, I think, be sufficient to establish the truth of my statement that the tricuspid and mitral orifices when in function are *circular* in form.

2nd. I will now proceed to the reasons which show that the areas of the orifices are constant—that they do not alter in superficies during the systole or diastole of the ventricles.

(1) The rings which surround the auriculo-ventricular openings are formed of white fibro-tendinous tissue. Being naturally inelastic, they are consequently unaltered in their perimeter by any normal eccentric pressure to which they are exposed by the passage through them of the auriculo-ventricular volumes of blood. In my former paper on this subject I have shown that the force with which these in-coming volumes enter the ventricles is small; and it is evident, therefore, why the tendinous boundaries of the auriculo-ventricular openings are feebly developed.

(2) The muscular fibres around these orifices are in no way found to be arranged in a circular form, and cannot possibly, therefore, act in the manner of a sphincter to close the openings. The fibres which constitute the walls of the ventricles are formed of seven strata, three of which are external and oblique, one central and transverse, and three internal and oblique. The first and seventh strata are alone inserted into the auriculo-ventricular rings, and converge in a direction almost at right angles to their planes, while the inner and subjacent strata have no connexion with or insertion into them, but are continuous beneath them. The masterly dissections of Dr. Pettigrew establish the truth of this description. It is clear, therefore, from this arrangement of the fibres, that the systolic contraction of the ventricles can have neither power nor influence to diminish the superficial areas of the tricuspid and mitral apertures.

(3) The muscular walls of the auricles, according to an able paper by Mr. Savory, of St. Bartholomew's Hospital, are found to terminate by two attachments. The larger and outer portion (the looped fibres of Quain and Sharpey) is closely inserted into the fibrous auriculo-ventricular ring, while the inner and thinner portion can be traced between the surfaces of the valves, terminating more or less abruptly by attachment to the tendinous tissue. The former offers no arrangement of fibres capable of contracting or in any way altering the capacity of the inlets, and the latter fibres are probably of use, as suggested by Valentin, to assist in raising the tricuspid and mitral curtains in ventricular diastole, in order that the blood may freely pass behind them and close them by recoil pressure.

It follows, therefore, that neither on the ventricular nor the auricular side is there any muscular arrangement existing capable of affecting the areas of the auriculo-ventricular apertures. In fact, the existence of valvular curtains would, I think, lead one, *a priori*, to expect that they alone are requisite and sufficient to close the apertures. *Where sphincter muscles are found, valves are absent.* We find no valves at the pylorus, anus, and orifice of the bladder in man, and the right auriculo-ventricular orifice in birds, which is *entirely* muscular in structure, exhibits no trace of a curtain.

I propose at some future time to enter into the consideration of the probable reasons why the heart of the bird differs in the shape of its right auriculo-ventricular orifice from that of the mammal. If the tricuspid and mitral orifices could be contracted by muscular action and closed, as the neck of the bladder is, by a sphincter, no valvular curtains would be required. The two forms of arrangement for closure are incompatible with one another.

Again, looking at the result, it is manifest that auricular action, if capable of diminishing the area of the orifice, would only tend to impede the flow of the blood from the auricle to the ventricle, and thereby oppose the attainment of the very object which it has to accomplish. And it is equally clear that any contraction of the area of the orifice by ventricular systole would not assist in the expulsion of the ventricular contents, inasmuch as the curtains are *inelastic*, and cannot diminish in superficial area under any effort of the papillary muscles, which regulate their position and tension. The obliteration of the ventricular chamber is effected only by the contraction of its muscular walls, during which process the auriculo-ventricular curtains are drawn down by the papillary muscles in the shape of a cone, which in its gradual descent becomes filled with blood from the auricle. The pressure on the ventricular surface of the cone continues, of course, much greater than the pressure of the blood contained in the cone, until the end of the systole, when it becomes zero, and allows the constituent portions of the cone to separate from each other under the pressure of its fluid contents; and thus is the onward current of blood favoured from one chamber to the other, and a *sudden shock* to the flow into the auricle prevented during the contraction of the ventricle. The *persistent*

opening of the auriculo-ventricular orifice during the descent of the valve, so well described by Pettigrew, forms evidently an important part of the arrangement.

There is therefore, I think, great reason for believing that the areas of the tricuspid and mitral openings are as unaffected in systole and diastole as are the areas of the aortic and pulmonic apertures. The rings which surround the latter are very strong, and capable of resisting the pressure of the volumes of blood which pass through them in systole; and unless the orifices maintained their constant areas, their valves, which are *inextensible*, would be unable at all times to adapt themselves to the openings which they have rigorously to close. The same line of argument is applicable to the auriculo-ventricular apertures and their curtains. The respective areas of these openings must be constant, in order that the inextensible valves belonging to them may be able to adapt themselves at all times to them.

As an additional illustration in proof of the constancy of the areas I may refer to some recent experiments made by Drs. Sibson and Broadbent on the living dog. In fasc. vii. of the "Medical Anatomy" Dr. Sibson says:—"When I observed the heart acting vigorously under water, after being cut out, it seemed to me that the circumference of the shut valve (mitral) did not lessen with the diminution of the ventricle towards the end of systole. It would appear that the pressure of the blood, by filling the sacculi on the under-surface, unfurls, flattens out, and enlarges the valve, so as to maintain it almost of full size to the end of systole."

If, then, it be true that all the chief orifices of the heart are circular in form when in action, and that their respective areas are constant during systole and diastole, certain objections which have been raised to the truth of the statements made in my former paper are removed, and the correctness of the formula which I have discovered—namely,

$$\frac{\text{Area of tricuspid}}{\text{Area of mitral}} = \frac{\text{Area of pulmonic}}{\text{Area of aortic}}$$

becomes more fully established.

And if it be also true, as it undoubtedly is, that equal volumes of blood must pass synchronously through the pulmonic and aortic openings, and that the two ventricles exert very unequal pressures during systole upon these equal volumes of blood, it must follow, if the velocities are unequal, that equal *times* of efflux can be only obtained by the areas of the aortic and pulmonic orifices being inversely as the velocities of the streams which traverse them. During the period of each systole the left ventricle has not only to sustain and neutralise the pressure of the aortic column, but also to send forth nearly five cubic inches of blood into that vessel. The latter is by far the smallest portion of its task, as shown in an able paper written by Dr. Andrew Buchanan, of the University of Glasgow, upon the "Effective Force of the Heart"; but the principle—the formula—for the truth of which I am contending (the result of the correlation of the forces of the two hearts), does not involve the objects for which the forces of the two ventricles are put forth. It is sufficient to know that the velocities are unequal—that they result from the operation of unequal forces which act in equal and the same times upon equal masses of blood traversing openings of confessedly unequal areas—to be convinced that these areas must be inversely as the velocities of the streams which pass through them. An American reviewer of my paper clearly puts it:—"Dr. Davies's observations relate only to the relation between the *size of the orifices* and to the average velocity of the blood through these orifices, and he deals with *vis viva* only on attempting, as it were, to confirm the latter."*

M. Onimus, in the *Journal de l'Anatomie*, 1865, has attempted to show that the auriculo-ventricular openings are completely closed in systole by muscular (sphincter) action, but the investigations of more recent anatomists completely negative the existence of such an arrangement of fibres; and with respect to one of these openings he himself says:—"Si pour l'orifice auriculo-ventriculaire on peut admettre des fibres circulaires formant des sphincters, pour l'orifice gauche cette expression n'est pas très juste, car cette dénomination suppose un muscle annulaire, et nous avons vu qu'une partie de cet orifice était complètement fibreux." In fact, the dissection of a heart which has been boiled for some hours will readily show that the fibres at the auriculo-ventricular orifice have an almost vertical direction, and that their action would tend rather to keep the openings dilated than closed during the ventricular systole. I cannot believe also that any trust can be placed upon the very rough experiment described by M. Onimus of passing a finger through a wound made in the wall of the auricle of a living animal so that it may reach and be pushed into the ventricle through the auriculo-ventricular orifice. Fatal and sudden syncope would undoubtedly result and interfere with the experiment.

Finsbury-square, June, 1872.

* The American Journal of the Medical Sciences, Oct. 1870, p. 503.

INTESTINAL OBSTRUCTION OF FIVE DAYS' DURATION, CURED BY KNEADING, AFTER INJECTION PER RECTUM.

BY C. HILTON FAGGE, M.D.
ASSISTANT-PHYSICIAN TO GUY'S HOSPITAL.

F. G. H——, aged forty, was attacked on the evening of Friday, Sept. 22nd, 1871, with great pain in the abdomen, quickly followed by severe vomiting. He had had a motion, natural in every respect, about midday; between that time and the commencement of his illness had lifted no weight, nor done anything to account for the symptoms under which he suffered. He had been a free liver, but had always enjoyed excellent health. He sent, on the morning of the 23rd, for Mr. Brookhouse, of Deptford, to whom I am indebted for the following account of his case:—

"On entering the room, I was struck by the anxious appearance of his face; he was crying out with pain, his hands placed over his abdomen, his thighs flexed on the pelvis. There was great pain in the epigastric region a little to the right of the median line, increased by pressure. The pulse was 80, normal in character; the tongue clean and moist; no hernia; he had had no shivering, and there was no evidence of peritonitis. The urine was very scanty and high-coloured. The matters vomited appeared to be gastric secretion with some bile. He was ordered to take a draught of chloral hydrate, twenty-five grains, in cinnamon-water, immediately, and a mixture containing carbonate of soda, tincture of opium, hydrocyanic acid, and spirit of chloroform, every three hours. Hot fomentations were applied over the abdomen, and an injection of castor-oil and turpentine in half-a-pint of gruel was administered. This brought away two or three hard nodules of fæces, and on the evening of the 23rd he was somewhat easier.

"Sept. 24th.—Morning: He passed a very bad night. The pain comes on in paroxysms, recurring every three or four minutes. A little to the right of the median line a small tumour is perceptible, which now and again disappears (? contraction of rectus muscle); the vomiting is constant of the same fluid as before; pulse 90. A second enema ordered.—Evening: The enema returned mixed with a small quantity of blood and much mucus. Ordered ice and one grain of opium powder every hour.

"25th.—Much worse; pain intense; sickness continual; abdomen somewhat tympanitic. In the afternoon he was seen by Dr. Hilton Fagge in consultation. The abdomen was then full, but not over-distended; the right loin, perhaps, offered more resistance than the left. To the right of the umbilicus and above it there was distinct hardness, which gave obscurely the impression that a transverse coil of bowel could be felt above, bending upon a vertical one below. This, however, may have been only the rectus muscle; for afterwards, when the legs were drawn up, it became less distinct. The tongue was rather dry; the skin warm and comfortable. The vomited matters were brown, with flocculi of a darker colour; but not stercoraceous. He was ordered a pill containing a quarter of a grain of extract of belladonna and a grain of opium every two hours; iced beef-tea and milk.

"26th.—Morning: Has passed a good night, and has had no pain or sickness since 8 o'clock last night.—Evening: Still better; but has passed nothing through the bowels. Urine still very scanty and high-coloured.

"27th.—Had no pain or sickness until 9 A.M., when both

returned suddenly. A castor-oil and gruel injection administered, but it returned as injected.

"28th.—The pain and sickness still continue at intervals. The man is much lower.—9 P.M.: A long rectum-tube was passed as high as possible, and a pint of gruel, with an ounce of castor oil and half an ounce of turpentine, was injected. After the tube was withdrawn, my assistant, Mr. De Brent, kept the anus closed by pressure with his finger, and I proceeded to knead the abdomen, using great care, but still employing as much force as my patient could well bear. The manipulation was continued for a quarter of an hour.

"The injection was retained until 2 A.M. on the 29th, when between two and three pints of broken-down fæces and mucus mixed with the gruel were passed. Next morning he was free from pain and sickness, and felt quite comfortable. At 9 P.M. the injection with the long tube was repeated, and the abdomen was again kneaded. Half an hour afterwards he passed about two pints of feculent matter, and at 8 A.M. had a natural motion.

"From this date he progressed favourably, but on Oct. 1st he had an attack of delirium tremens, and took fifteen grains of opium before sleep was obtained."

Remarks.—In this, as in so many other cases of intestinal obstruction, it was not possible to determine accurately the cause of the disease. The history of the attack pointed to a sudden closure of the calibre of the bowel, and probably to the small intestine as its seat; while the fact that mucus and blood were passed on the third day was in favour of the existence of an intussusception, and of its having become strangulated as soon as formed.

The remarkable feature in the case, however, is the success of the energetic treatment which Mr. Brookhouse adopted. It can hardly be doubted that the life of the patient was saved by the kneading of the belly carried out by his medical attendant; and so satisfactory an issue in this case may well encourage other surgeons to adopt a similar procedure. Yet it cannot be denied that such forcible manipulation of the abdomen would, in many instances, involve great risks of tearing through parts softened by inflammation, or even sloughing, and might thus counteract the curative processes of nature. It can scarcely be said that there was anything in the symptoms in Mr. Brookhouse's case that indicated the special applicability of kneading; nor does the success of the treatment enable a more accurate diagnosis as to the nature of the intestinal lesion to be given than had been given before it was tried. The case still remains a very obscure one in this respect.

St. Thomas's-street, June, 1872.

THE EMOTIONS, AND THE PSYCHOLOGY OF DARWIN.

BY JAMES MORE, M.D.

HAVING an intense admiration for Mr. Darwin as an original thinker, an earnest worker, and a profound naturalist, I am still far from accepting all that *special* doctrine of evolutionism as taught by him and his school.

Most thinking men are ready to admit that the Darwinian hypothesis of "natural selection" has thrown a flood of light on many hitherto obscure points in biological science; yet the system built up from the hypothesis is not in itself satisfactory, in so far as it fails to embrace and explain many of the most important facts connected with the development of the human race.

Mr. Huxley has shown that there is nothing in man's mere physical structure to interfere with his having been evolved from an ape; but no one has as yet assailed, in a purely scientific and satisfactory manner, that stronghold—"the position that there is a distinction in *kind* between the mental faculties of man and those of the brute; and that, in consequence of this distinction in kind, no gradual progress from the mental faculties of the one to those of the other can have taken place."

This specific distinction is nowhere more apparent than in the *feelings* and *emotions*.

Without attempting anything like a general classification of these mental phases, a very slight survey is sufficient to convince us that, though there is a close similarity, or even identity, in what may be called the physical or somatic feelings of man and the brute, still man stands alone in the possession of purely intellectual and moral emotions.

It is in virtue of his animal or corporeal organisation that man possesses, like the brute, these grosser feelings; but it is in virtue of his self-consciousness that he possesses feelings and emotions of so special and distinctive a character—feelings and emotions which, in their expression, control intelligence, guide the will, and are in strict harmony with his æsthetic and religious nature.

We cannot but admit that the lower animals have feelings and emotions of a complex kind, which, besides entering largely into their mental life, produce much the same effect upon their bodily organisation as the same feelings and emotions do on man. Thus Mr. Darwin tells us, "terror acts in the same manner on them [the lower animals] as on us, causing the muscles to tremble, the heart to palpitate, the sphincters to be relaxed, and the hair to stand on end." No doubt they have suspicion, courage, fear, affection, and other allied emotions; but, on analysing these feelings, we are bound to admit that they are, for the most part, all of somatic or physical origin—in fact, that they are simply modes of instinctive consciousness.

We know that in the process of sensible perception there is, as there is indeed in almost every other intellectual act, a decided *duality* of action: there is the *subject* perceiving, and the *object* perceived. In the emotions in man this duality entirely ceases. "In all the intellectual processes, of whatever kind, the mind's chief attention is fixed upon the object; in the case of the emotions, the object is lost sight of. In other words, when we are the subjects of any kind of feeling, we no longer look out of ourselves, but inwardly at our own being. And as it is with the various phases of pleasure and pain, of the agreeable and disagreeable, that the emotions are directly conversant, what we have particularly in view is our well-being on the one side, and our ill-being on the other." (Morell.)

In any act of feeling or emotion, what we are really conscious of is, our own particular state for the moment. Our emotions are thus purely *subjective*, and are co-ordinated in the case of our intellectual emotions by self-consciousness, and in the case of our moral emotions by conscience. On the other hand, the emotions of the lower animals are deficient in the subjective element. Like their higher instinctive and probably also their intellectual acts, their emotions are purely mnemonic or phantasmic acts, merely individual acts of *objective* consciousness. Their feelings are always related to some *object*, and can come into play only in the actual *presence* of that object. It is true that these feelings may also manifest themselves through the mediate power of the memory and imagination; but "these acts of memory and imagination are, like their other acts of consciousness, *individual* and *objective* acts; that is to say, they are induced by the presence of an object." Their emotions have never any reference to any general notion or abstract idea, but merely to external objects of the senses. "Both man and brutes," says Müller, "seek what is pleasing and avoid that which is unpleasant; but men only are affected agreeably and painfully by abstract ideas and thoughts."

This distinction, that of *subjective* in man and *objective* in the brute, I hold to be a most specific and important one, and places man in a position far above that of the brute—a position, I maintain, which could not have been arrived at by the latter through millions of ages of evolutionism.

It would seem, then, that the feelings and emotions of the brute are of a quasi-physical kind, and are simply specific feelings of sensorial pleasure or pain. It matters not in what relation the appetites stand to sensation, the passions to perceptions, or the social impulses to the understanding, they are each and all subservient to the two great laws, the preservation of the individual and continuation of the species.

The element of time, again, is seen to play a very important *rôle* in the manifestation of the emotions. We saw that the intellectual processes of the brute are merely suggestive acts, merely acts of objective consciousness. These acts are strictly individualised in the *present*, and neither extend into the future nor recede into the past. As the

emotions of the brute are all manifestations of objective consciousness, it follows they can have reference only to the present—that is to say, unless the actual object or cause of the emotion be present, the brute can have no cognisance of the feeling.

The higher emotions in man hold more complex and quite distinctive relations to time—relations which, in a comparative point of view, give these emotions a decided and special character. In emotions, as expectation, remorse, &c., "the mind is in a state of tension between the *present* and the *future*—between the present in which we are, and the future in which we wish to be; and this state of tension is produced by the struggle of certain ideas to be uppermost, by the forcible attempt to repress the present and realise the future, and by the rigour with which both maintain in succession their hold upon the consciousness." (Morell.)

In man the emotions may be said to hold a middle place between reason and will. In virtue of the former, he, through his self-consciousness, knows when he ought to obey or control his appetites or emotions, and, through his force of will, determines his conduct accordingly.

In the brute, the appetites, feelings, or emotions being under the influence and guidance of instinct, they must be obeyed, and they are often obeyed contrary to the conditions under which they ought to be manifested. This is what is sometimes called blind instinct; it is simply the manifestation of any feeling or emotion apart from conscious intelligence. Mr. Darwin, always rich in illustration, tells us that "the love of the dog for his master is notorious; in the agony of death he has been known to caress his master; and everyone has heard of the dog suffering under vivisection who licked the hand of the operator. This man, unless he had a heart of stone, must have felt remorse to the last hour of his life." Is this not a good illustration of an animal showing the feeling of love apart from intelligence? Had the dog shown anything like human feeling, he certainly would not have licked the hand that was inflicting upon him so much pain. On the other hand, the operator did not feel remorse, or, rather, did not allow his feeling of remorse to influence his conduct, as his reason told him that he performed the operation for a scientific purpose. In this instance his feeling became purpose, being controlled by his intelligence.

Again, Mr. Darwin, quoting from Whewell's Bridgewater treatise, says, "Who that reads the touching instances of maternal affection, related so often, of women of all nations, and of the females of all animals, can doubt that the principle of action is the same in the two cases."

No doubt these feelings belong to the same teleological group, but I must again draw attention to the almost complete absence of the element of intelligence in the maternal affections of the brute. During lactation, how often we see dogs suckling cats, cats acting the mother to dogs, hens bringing up ducks, &c. Mr. Darwin gives an instance of "one female baboon having so capacious a heart that she not only adopted young monkeys of *other* species, but stole young dogs and cats, which she continually carried about."

It seems unnecessary to point out that this maternal affection cannot for a moment be compared with the intelligent affection or love of woman. In the one case we have an instinctive act having reference solely to the preservation of the species, the absence of intelligence completely rendering that affection *teleologically* abortive. On the other hand, we have a feeling which, through the controlling power of intelligence, is absolutely perfect in its teleological results. It may be argued that we have no right to bring results into the question; but every faculty becomes in a sense abortive if it does not perform its destined function. If we may be allowed the analogy, the eye ceases to become a perfect optical instrument if the retina is incapable of receiving pencils of light.

But it may be asked, why this gross blunder or error in the maternal instincts of these animals? Simply because of the law that all instincts are conditional as well as potential acts. Before they can manifest themselves truly and correctly, certain conditions, certain circumstances must always be present. The brute, not having intelligence, cannot always tell when all these conditions and circumstances are present; hence the blunder of the baboon with the capacious heart. The woman, it is needless to remark, can make no such mistake, as her intelligence or reason enables her to bring herself into harmony with all the conditions and circumstances.

In the cases now adduced we see the operation of "blind instinct." The maternal feelings were given for the definite purpose of preserving the species. These animals, not having intelligence in reference to these feelings, did not know that they might be adopting means to destroy instead of means to preserve their kind.

It is with the feelings and emotions as it is with all other mental acts of a purely sensational or impulsive nature—one idea, one feeling, or one instinct may be so strong as to conquer or replace all others existing in the mind at the time.

We see this in man under various phases. Thus the fear of death may, in a badly regulated mind, and under peculiar circumstances, so usurp a man's mind as to make him totally blind to every other consideration but that of self-preservation. We know that the drowning man will clutch in despair at the arms of his preserver, having no thought for the safety of the latter, but only for his own.

On no other principle can we account for the mental vagaries of the phreno-mesmerist, the absurd antics of the modern spiritualist, or the ancient dancing manias which during the middle ages spread over Italy and Germany like some dreadful epidemic. This predominance of one idea is well seen in some of the incipient stages of insanity. I have at present under treatment a man who has had already one attack of insanity, and has another now approaching. He tells me that often when he has any important duty to perform he fails in doing it from the fact that some new idea appears, and so engrosses his mind that he can think of nothing else. His memory is very defective, and his power of recollection is almost completely gone, the consequence being that he cannot keep before his mind's eye the duty to be done. Any new idea or circumstance may forcibly claim his attention, and banish everything else out of his mind for the time being. How closely this state resembles that seen in childhood, and in many points that of the brute.

We see much the same thing in the untutored Indian, a man with few ideas, deficient to a great extent in that moral sense which is the result of education and religion. His instinctive impulses and moral feelings all centre round the two great laws of self-preservation and communal right, the latter expressed in the love he has for his tribe. These feelings are strongly developed in his nature, and one or other will always be dominant in his mind, and influencing all his conduct.

But it is in the lower animals we find this domination of one feeling or impulse so apparent. We never find them acting from mixed feelings or motives, one instinct, one feeling, one idea being always dominant and guiding their conduct. "The most curious instance," says Mr. Darwin, "known to me of one instinct conquering another is the migratory instinct conquering the maternal instinct. Everyone knows how strong the maternal instinct is, leading even timid birds to face great danger, though with hesitation, and in opposition to the instinct of self-preservation; nevertheless, the migratory instinct is so powerful that, late in the autumn, swallows and house-martins frequently desert their young, leaving them to perish miserably in their nests." Every schoolboy knows that if he visit a nest too often, or disturb it in any way, the old birds will desert their little ones, fear in this case replacing the otherwise strong maternal instinct.

It is the boast of man that he can control and regulate his feelings, impulses, and desires. He does this in virtue of his peculiar structure of mind and of his moral and religious nature. Man who has some defect in his mental constitution may, and, indeed, generally does, give way to the dominion of one impulse or one set of feelings. He may then become what is aptly called "brutal" in his nature or conduct; his passions and feelings may so overpower him that he may end his career on the scaffold or in a madhouse. We have another illustration of the same thing in the woman who, through want of control of her impulses and feelings, has drifted into one or other of the many phases of hysteria.

I honestly believe that in this gradual giving way to the dominion of one idea or impulse, in the nursing of any favourite though ungratified passion, and in this want of balance between the psychical and somatic emotions, we

have the key to many phases of insanity and crime. As it is with the individual so it is with families and nations. We have all read of the gradual enervation of the ancient Roman, and the consequent downfall of his proud empire; and is it not a question for the future historian how far the French owed their disastrous losses in the late Franco-Prussian campaign to the hyper-development in them as a nation of the æsthetic and grosser feelings?

Under the head of the more intellectual emotions Mr. Darwin mentions *wonder* and *curiosity* as possessed by the lower animals.

No doubt, in man these emotions are complex and in most instances highly intellectual acts, for we find the act of wonder may have reference not only to the kind of object wondered at, but also to the new and unusual relation any well-known object may bear to time and space. We have thus two chief kinds of wonder, either of which may be a highly intellectual act.

In the brute this faculty is not a complex or intellectual act, but, as we shall find, a primary instinctive feeling.

1. If any *new* or striking object occurs in any of the physical trains of events, or any unusual change takes place in the general appearance of an object, we are astonished, we are surprised, we wonder.

2. If an object which is familiar to us occurs to us in situations in which we do not expect to find it, or at times when it rarely does or should not occur, then we express wonder or astonishment.

We can now isolate this emotion as seen in the lower animals. Any animal may wonder or be surprised at the occurrence of any *new* or *striking* object, or at any great change in the appearance of any familiar object; but an animal never does feel wonder or astonishment at any familiar object appearing at unexpected times or in unusual places. Suppose, for illustration, that one of my dogs were to meet me suddenly at the top of the Matterhorn, it would express joy, but could not feel wonder at seeing me there; but if I went out into my stable-yard with a new coat on, or any garment of a new and striking colour, my dogs and poultry would at once show signs of wonder and astonishment.

This feeling of wonder, then, in the lower animals, may be looked upon as a primary instinctive feeling—not, as in man, as a complex emotion; and is given to the former by the all-wise Creator as a protection against any danger that may threaten the life of the individual or the continuation of the species. If animals were destitute of this instinct, they could not appreciate the approach of danger when it occurred in any unusual form.

That this is the use of wonder may be inferred from the fact that with animals the feeling of *fear* for themselves, or for their tribe or flock, almost always accompanies the feeling of wonder, and just as fear is generally consentaneous with the expression of wonder, so is *curiosity* intimately linked with the latter. As Mr. Darwin tells us, the hunter by his antics excites this feeling in the wary chamois or deer, and so is enabled to capture or destroy them. That interesting and amusing account by the same author, of the monkeys' wonder, curiosity, and fear, when a live snake in a paper bag was placed in one of their compartments, is a good illustration of the same thing.

To recapitulate. We find that the feelings and emotions of man give him quite a distinctive character, and seem to exclude him from the scale of mere animal being. This seems the natural and logical outcome of our previous investigations, a *résumé* of which I now give in categorical form.

1. The emotions in man are *subjective*, in the brute they are purely *objective* acts.

2. Man has intellectual, moral, and somatic emotions, which may hold simple or complex relations, according as they are conditioned by consciousness or self-consciousness.

3. The brute has somatic emotions, which may hold simple or complex relations, according as they are conditioned by instinct or intelligence.

4. Man possesses emotions which have reference to his æsthetic or religious nature.

5. The feelings and the emotions of the brute, like the purely somatic emotions in man, have reference only to the preservation of the individual and continuation of the species.

6. The higher emotions in man hold very complex relation to the element of time, and place him in harmony with the *past*, *present*, and *future*.

7. The emotions of the brute have reference only to the *present*.

8. The emotions of man are in strict harmony with his moral will. The emotions of the brute are in accord only with volition.

9. Certain emotions in man and animals become, under certain circumstances, dominant in the mind, conquering and replacing all other emotions and feelings.

10. Man can control or prevent this domination of feelings; the brute cannot.

11. The emotion or feeling of wonder is one of the most important in man, and, from its special relations to time and space, forms one of the most distinctive features in his mind. In the brute this feeling has no definite relation to time and space.

The above is offered, not as an exhaustive, but as a suggestive paper; not as a definitive or final settlement of any of the points of inquiry, but simply as an effort—and many must yet be made—towards the solution of the great question of evolutionism.

Rothwell, Northamptonshire, 1872.

A NEW THEORY OF GOUT.

BY AUSTIN MELDON, M.D.,

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A GLANCE at the history of gout will convince the most incredulous that little progress has been made in the pathology of the disease. There is, moreover, some reason to believe that in its treatment we are not much in advance of the ancients. The humoral theory of Hippocrates and Galen does not differ essentially from the uric-acid and urate-of-soda doctrine of the present day; and there is much uncertainty as to whether our forefathers did not know of the existence of colchicum or some kindred plant. Be this as it may, one thing is certain—gout is now a more common and a more fatal disease than heretofore. Within the last twenty years, at least six thousand persons have died in the United Kingdom directly from this disease, and ten times that number have perished indirectly from it. I therefore deem no apology necessary for laying my views of the nature and treatment of this important affection before my professional brethren, believing it to be the duty of every medical man to forward as far as he can the pathology of disease.

Cullen, who believed gout to be an affection of the nervous system, had few followers; it was difficult to explain by this theory many of its phenomena, and it soon, therefore, passed into oblivion. It was replaced by the reappearance of the humoral theory, which lasted until Dr. Garrod's experiments proved the existence of uric acid in the blood of the gouty. The late Dr. Gairdner believed that the disease was due to venous congestion, but with the exception of a few of his followers, here and in Germany, most medical men have adopted the uric-acid theory.

True, many do not believe, with Dr. Garrod, that the kidney is the organ whose functional impairment causes this undue accumulation of uric acid, but refer it to derangement of the stomach, liver, or kidneys; the principle of the doctrine is, however, universally received. I have, nevertheless, little doubt that every practical physician will agree with me, that the presence of uric acid or urate of soda cannot be the sole cause of this distressing malady. In Ireland, gout is one of the rarest affections met with in hospital practice, yet I have repeatedly found the blood of otherwise healthy men lying in our accident-ward loaded with urates; and my own blood has been in this condition for years, although I have never had the least symptom of gout. Dr. Gairdner found urates in the blood of a boy four years of age, in whose family gout had never been known. It is therefore necessary to find another link to complete the chain; this, I think, is furnished by Cullen's theory.

The predisposing cause of gout is undoubtedly the presence in the blood of uric acid, and of soda in some form; nerve-force, I believe, when in a healthy condition, preserves these two in a fluid state, separately, in a condition in which they may be eliminated by the skin, kidneys, or bowels. As soon, however, as this nerve influence is lessened, these two substances unite in the tissues most removed from the brain and centre of circulation. Irritation and inflammation excite the nervous system to increased energy, and the disease for the time is arrested; often, however, a like cause produces a second exacerbation, a third, or even a fourth, and then nature gradually alters or removes that which has been deposited, and all traces of the fit have passed away. The time that an attack generally commences is at night, when both nerve-force and the circulation are weakest; the position, moreover, most usually affected—the great-toe—favours my theory; and I need scarcely mention the numerous instances recorded where a fit of gout has been brought on by great nervous depression. Columbus never suffered from the disease until disappointment and ingratitude depressed his whole nervous system. Hundreds of similar cases are familiar to all; politicians and speculators are particularly liable to gout.

The action of colchicum furnishes me with one more proof. By an experiment which may be repeated by anyone at will, I have satisfied myself that it is a nervous stimulant. Repeatedly have I, whilst fasting and in perfect health, taken doses of from ten to fifteen minims of tincture of the seeds of colchicum. Its effect was to produce, first nausea, and then increased action of all the organs of the body; the skin became moist, the action of the kidneys and liver increased, and the mental faculties were invigorated. On some occasions the heart's action was much increased, and I have even experienced severe palpitation consequent on its use. All these results can only be produced by a nervous stimulant. This is the only way, too, in which its apparently magical influence on a seizure of gout can be explained, and it accounts also for the injury which its too frequent use may produce.

In conclusion, I have to recommend for trial, in the treatment of chronic gout, some medicines from which I have, in my practice, derived the greatest assistance.

Sulphate of nickel and the triple phosphate of iron, quinine, and strychnia will be found of the greatest benefit.

There is but one other point connected with this subject which I desire to mention. It has often been doubted that the skin can eliminate uric acid; but if a large quantity of perspiration be collected, and, after evaporation, tested, abundant crystals will be obtained. For this experiment it is necessary, in the first instance, to have a large quantity; I have repeatedly obtained as much as a pint, by aid of the Turkish bath. From a small amount of perspiration I rarely succeed in obtaining positive proofs of its existence.

June, 1872.

THE MEDICAL VALUE OF THE NITROGENOUS TEPID WATERS OF BUXTON.

By WILLIAM HENRY ROBERTSON, M.D.,

CONSULTING PHYSICIAN TO THE DEVONSHIRE HOSPITAL AND BUXTON BATH CHARITY.

INQUIRIES that are addressed to me from time to time by medical men lead me to think that the Buxton tepid waters are practically unknown to many, notwithstanding the great publicity which has been given to them by the extensively circulated reports of the Devonshire Hospital and Buxton Bath Charity, and notwithstanding that the guide-books to the use of the water have an average sale of not fewer than from one thousand to fifteen hundred copies yearly.

Buxton is so far to the north of the midland counties of England as to be placed about midway between Derby and Manchester, and almost centrally between the eastern and western coasts, at an elevation of one thousand feet above the level of the sea, on the great geological formations of mountain limestone and millstone grit, which meet at Buxton; and from the edge of the mountain limestone formation the tepid water finds its way to the surface, from such depths as to have been cooled in its transit from the greater heat of the deeper source to the comparatively moderate warmth of 82° F. At this temperature the outflow is so great as to supply the baths and well with an unvarying quantity of nearly 150 gallons per minute, entirely unaffected by heavy rain or long drought, and presenting chemical characters which do not seem to have varied in any degree from the time when the first analysis was made by Dr. Short, more than one hundred years ago, or that by Dr. Pearson ninety years ago, nor even from the time when it was examined by Dr. Jones, in the best way that the chemistry of the period allowed, more than three centuries ago, until the time when it was analysed with all modern facilities and exactness by Dr. Lyon Playfair in 1852, and by Dr. Sheridan Muspratt in 1860. The water is singularly bright and clear, of a very beautiful faintly-blue colour as seen in bulk in the baths. As has been said, it is of the temperature of 82° F. It is slightly alkaline, remarkably soft and emollient to the skin, leaving the surface of the bather very smooth and pleasant to his feelings. There is no doubt that this affects the medical value of the water in a very important degree, increasing much the readiness with which it is absorbed through the skin of the bather, more particularly when, as is always directed in the case of invalids, the absorption is promoted by exercise and friction of the surface during immersion in the baths.

The water is surcharged with nitrogen gas on its issue from the earth, containing 206 cubic inches per gallon according to Dr. Lyon Playfair, and 504 cubic inches per gallon according to Dr. Sheridan Muspratt. The fact that the gas held in this large quantity in the water is pure nitrogen was discovered by Dr. Pearson in 1780, confirmed by Sir Charles Scudamore and Mr. Garden in 1818, and shown to be present in such important quantity by Dr. Playfair and Dr. Muspratt. The quantity of nitrogen in this water is probably greater than in any other mineral water, and seems to be approached most nearly by the water of Gastein and that of Wildbad, both of which are remarkable for having nearly the same action on gouty and rheumatic affections of the fibrous tissues as the water of Buxton. In its natural state, whether used as baths, or taken internally through the stomach, the water is too exciting in its effects to be used when there is acute or even active morbid action. The degree of effect on the system can be readily adapted to the condition of the patient when the water is drunk by holding the glass in the hand before drinking, during a longer or a shorter time, so as to allow more or less of the gas to be dissipated, and when used as baths by adding heated water to the water at the natural temperature to any required degree; and, if necessary, by immersing only a part of the body in the water of the bath. These are what are called three-quarter baths, or half-baths, or quarter-baths, the baths being used at any temperature from 86 to 100 degrees; or there may be no immersion, the water being sponged and rubbed into a larger or smaller extent of the surface of the body or limbs, or applied to any specially affected part by means of pads or compresses. In these ways the water is adapted to almost any degree of excitability, or weakness, or morbid state, the effect being modified and lessened as it is heated above the natural temperature, and as it is applied to a greater or less extent of surface. In more chronic conditions, on the other hand, the local effect is increased by using it in the form of douches, by which its absorption and action are secured at or near to any part which is specially affected.

The principal medical action is evidently on the fibrous tissues, promoting the absorption of morbid products, and relieving consequent disability; crippled joints becoming so far restored, and stiffened limbs relaxed. The result thus obtained, sufficiently great or even marvellous to prove the powerful action of the water, sometimes leads to an overweening expectation as to its possible influence. It need not be told to medical men that no such treatment can remove actual disorganisation, or reproduce a sound condition of joints or tissues which have been structurally damaged by disease. The water has restored mobility to joints and limbs after having been crippled during many years; but usually the effect is less certain or less complete the longer the morbid condition may have existed, and

usually the effect is more immediate as well as more complete the younger the patient and the more recent the case. The effect on the constitutional condition is perhaps better evidenced in cases of gout than in cases of rheumatism, in that the attacks become commonly less frequent, and their character more acute, after one or more courses of the Buxton water; the seizures being so far restored to the character manifested in the earlier attacks, and partaking less of the more chronic and almost continuous irritation which marks the cases of advanced and severe gout. But, although less marked, from the very nature of the disease, the same observation applies to cases of rheumatism and its morbid results. The liability to rheumatism becomes diminished in the same degree that the results of rheumatism are lessened; the effect on the local lesion is an index and earnest of lessened constitutional liability. Poor sufferers from rheumatism regain and retain sufficient mobility of limbs and flexion of joints to enable them to continue their occupations as weavers, spinners, winders, frame-work knitters, colliers, agricultural labourers, &c., if the yearly visit, or the visit every two or three years, as may be, is paid to Buxton, its baths, water, and hospital, who otherwise lapse into more severe decrepitude, requiring an eventual visit of greater length, and attended perhaps with less sufficing results, although perhaps sufficient to show the medical value of the water. The emulgent action appears to be chiefly through the kidneys, but is obviously also through the skin. The effect can only be expressed by the old word "alterative," involving a degree of resulting debility proportioned to the morbid condition and the strength of the system. The total upshot may be taken from the last Report of the Devonshire Hospital and Buxton Bath Charity. On the average of the last thirteen years the patients remained under treatment 24¼ days; 13,012 cases of rheumatism were received, and eight-ninths of the cases were discharged as having been beneficially treated; the relief being almost entirely due to the skilled use of the Buxton water during a residence in an excellent building, with a liberal dietary, in a dry upland climate, upon an absorbent mountain soil.

Buxton, July, 1872.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

KING'S COLLEGE HOSPITAL.

THE following operations were performed at this hospital on the 20th inst.:—

Ligature of Nævus.—The patient, a baby about six months old, was under the care of Mr. Henry Smith. The nævus, which was of the mixed kind, partly cutaneous and partly subcutaneous, was of large size and situated on the top of the head. The child had been under treatment elsewhere, and an attempt had been made to destroy the nævus by caustics, the strong nitric acid having been used. This had failed; for it was impossible to destroy by caustics such a growth. As could be seen, all that the acid had done was to destroy some of the cutaneous tissue, and the cicatrix resulting from its use was visible. The only treatment to be adopted for its removal was to ligature it, and this Mr. Smith then proceeded to do. The strong nitric acid could be used with advantage for the cutaneous form, but for the subcutaneous the ligature must be resorted to.

Excision of the Head of the Femur.—This patient, a girl about four years old, was also under the care of Mr. Smith. There was extensive disease about the right hip-joint, and an extraordinary amount of deformity; the leg was flexed and much adducted. The child was emaciated and had been long ill; and the disease was advanced so far that her life was imperilled. Abscesses had formed about the joint, on the outer side, and also on the abdomen; and this led Mr. Smith to think that the acetabulum was diseased or perforated, and that the mischief was not confined to the head of the bone. The only chance of saving the child's life was to excise the head of the femur, which Mr. Smith then proceeded to do in the usual way. The head and part of the trochanter was removed; it was carious and much altered, and the cartilage all gone. The head was lying on the edge of the acetabulum. The acetabulum was healthy, and Mr. Smith said he did not doubt that now the diseased head was removed all would go on well. He alluded to the time when the operation was first performed by Sir William Fergusson, now nearly thirty years ago. The interest aroused at the time was great: now the operation has become an established one in surgery, and those who then were most opposed to it have gone even further, and advocated its employment in cases which were then considered unfit.

Disease of the Hip-joint.—The patient, a boy about ten years of age, was under the care of Sir W. Fergusson. Both hips were diseased, and it was difficult to say which was the worse. The right is now apparently improving. Some time ago there was great deformity of the limb, but this had been remedied by cutting through a few fibres of the adductor muscles, and now the limb was in a better position, and almost straight. On the left side the disease had been more active, and the limb was much wasted. Sir W. Fergusson had excised the head of the femur a few weeks ago, but inflammation had kept up, and now he intended making some exploratory incisions to see if there was any dead bone which could be removed. This was done, and the sinuses of a large abscess were laid open freely, but no dead bone was met with.

Necrosis of the Ilium.—The next patient was a young man, aged seventeen, who fourteen months ago had some inflammation about the left hip, in the iliac region. Whether the disease had originated in the hip-joint or not Sir W. Fergusson could not say, but anchylosis had taken place between the femur and the ilium; a great deal of new bone had formed around the parts, causing great thickening. It was most probable there was some necrosed bone that required to be removed. Several sinuses were laid freely open, and Sir W. Fergusson then found that a large piece of bone, about two inches square, was loose and able to be removed; after this two other large pieces, together making up part of the iliac crest. This, Sir William Fergusson remarked, was a good case for operative interference, as now the dead bone had been removed the patient would soon be about, whereas had it been left to nature, several years would have been required before the bone could be got rid of.

Cleft Palate.—This patient, a young man, had been operated upon three or four times by Sir W. Fergusson. First the soft palate had been brought together, then the cleft in the hard had been closed over. There was now a small aperture just behind the alveolar ridge. The edges were pared and brought together by one suture. Sir W. Fergusson remarked, after describing the operation he had performed, that he was never very sanguine about such cases, as the parts often failed to unite; but it was more favourable in this case as the man had been operated upon several times before, and through this the tissues had become indurated, and so presented a firmer hold for the suture.

Division of Third Branch of Fifth Facial Nerve for Tic.—On the previous Saturday Sir W. Fergusson divided the third branch of the fifth facial nerve on the right side, in an elderly man who for some years had suffered from tic doloreux. The man had been under his care for many years, living in the country, and coming up to town when the pain was excessive; he had operated upon him five times previously. It is now sixteen months since the nerve was last divided. On the present occasion not only was the nerve cut through, but a small gouge was put into the dental foramen, and worked about for some time, so as to completely destroy the nerve. Sir W. Fergusson remarked that relief was not immediate; the pain usually continued a short time, and then suddenly ceased, and did not return for a certain time; the intervals gradually lessened after each section. There were other modes of accomplishing the same object, but he preferred this one, and now anæsthesia could be used the operation was not a severe one. As a proof of the relief obtained he stated that a patient on

whom he had operated some years ago gained two stone in weight in the six months' interval before the pain again returned.

ST. BARTHOLOMEW'S HOSPITAL.

CIRRHOSIS OF LIVER; ERYSIPELAS.

(Under the care of Dr. BLACK.)

THE following account is interesting in many ways. We do not often meet with cirrhosis of the liver at so early an age, nor in a man not addicted to drink, and who has not had syphilis. The cerebral symptoms were also peculiar. His death was apparently due to exhaustion during a severe attack of erysipelas ambulans. The notes of this case have been forwarded us by Mr. H. Thompson, house-physician.

A. O——, aged twenty-six, a saddler, was admitted into hospital on Feb. 16th, 1872, complaining of pain in the region of the spleen; also, he is unable to work on account of his hands shaking whenever he attempts to do anything. He is a stupid, drowsy-looking man, with sallow complexion and conjunctivæ slightly tinged with bile. Bowels regular; fæces very pale. Urine: sp. gr. 1020, no albumen, but traces of bile. Heart and lungs healthy; liver smaller than natural; spleen much enlarged, and can be felt 8 in. below the costal cartilages. No anasarca or ascites. He has been married five years, and has two children. Has always been a temperate man; never had syphilis; has been ill three years. Eighteen months ago he had general anasarca, which has just left him. In the spring of 1871 he had a febrile attack, lasting six weeks. He lost the partial use of his left side two years ago. Has had occasional attacks of apparently *petit mal* whilst working; during which he lets the tools fall from his hands, but does not entirely lose consciousness. He is sometimes seized in this way whilst walking, and would fall did he not lay hold of something to support him. The attacks are generally preceded by a feeling of tingling, cold, or numbness, especially in the hands and face.

Feb. 25th.—Whilst standing by the ward fire this afternoon he suddenly twisted quite round three or four times. The nurse asked him what he meant. He said he could not help it; it was his head. He did not fall, but quietly sat down in his chair. He says this attack was preceded by tingling commencing in the fingers of the right hand, and gradually spreading up his arms, and when it reached his head the attack came on. For some minutes after he seemed very drowsy.

March 1st.—Yesterday, whilst sitting by the fire, he fainted. To-day he cannot walk across the ward without assistance. Complains of tingling all over his limbs, and giddiness; eats well, but his meat has to be cut up for him. Conjunctiva more tinged with bile. Not so much pain in the region of the spleen.

4th.—About 2 A.M. the house-physician was called to him, as he was very restless. About ten minutes after the patient suddenly became very furious, flung himself out of bed, kicked, and tried to bite. By the united efforts of five persons he was lifted, or rather forced, into bed, and there held whilst his wrists and ankles were strapped to the bed. He was unconscious; pupils widely dilated, but contracted slightly under the influence of light. The eyes were not fixed, nor did he twitch his face or bite his tongue; both sides of the body were convulsed evenly. The attack lasted about an hour. He was very wild and excitable during the next twelve hours, struggling and shrieking. About 11 A.M. he was quiet, and said he did not know he was making a noise, and could not help it. He complained of a severe pain in the hypogastric region, and on placing the hand there the bladder was found much distended. A catheter was passed, and three pints of dark-coloured urine were drawn off. This was repeated at 10 P.M.

On the 5th the patient seemed better, and passed his urine naturally. Body and conjunctiva rather more tinged. Bowels confined; ordered a purge.

He had another slight attack on the night of the 7th, but was not so violent. Urine contained more bile, and a small quantity of albumen.

On the 12th, as he had been very noisy and violent the night before, he was removed into the strong room in the casualty ward.

He seemed to improve for a few days, and his hands became less shaky; but on the 21st his face and nose looked puffy, and on the next morning his features were almost entirely obliterated by a reddish-white brawny swelling. Both eyes were closed; face dusky; bowels confined; tongue dry, brown, cracked; skin yellow. Temperature 101·4° F.; pulse 108.

22nd.—Pulse 132; temperature 104·2°. Tongue swollen; skin perspiring profusely; quite sensible. Collodion painted over the face. To take half a drachm of tincture of perchloride of iron every two hours. — 10.30 P.M.: Pulse 132; temperature 103·6°; breathing semi-stertorous; bowels freely opened at 5 P.M.; still perspiring; lips brown and dry. To have one ounce of brandy every hour.

23rd.—Pulse 100; temperature 98·6°; respiration 28. Face not so much swollen. Venous pulsation was noticed yesterday, even in the superficial veins on the back of the hands. — 10 P.M.: Pulse 108; temperature 102·2°; respiration 36. He has not been able to open his eyes since the commencement of the erysipelas. One ounce of brandy every two hours.

25th.—Numerous bullæ, which had formed on the left side of the face, were punctured, and gave exit to a large quantity of serum. Pulse 108; temperature 101°. One ounce of brandy every four hours.

26th.—Face and neck much less swollen; the erysipelas is spreading down the chest. Temperature 99·7°; pulse 96.

28th.—Face and neck nearly of the natural size. The rash has extended down the back as far as the loins. There is a small bed-sore on the sacrum. Nose bled freely this morning. At 10 P.M. the patient began to hiccough. He was ordered an injection of one-third of a grain of acetate of morphia. Pulse 84; temperature 100°.

29th.—The hiccough continued all night. The rash has spread down to the umbilicus. Numerous red ecchymotic spots exist on the right side of the body as far as the iliac spine. Temperature 101·6°; pulse 84.—10 P.M.: He is quite sensible; hiccough every fourth inspiration.

30th. — Temperature 100°; pulse 96. Bowels very much relaxed; motions horribly offensive, dark-coloured from altered blood, and containing a small quantity of bright-red blood.—10 P.M.: Purging still continued; he has begun to vomit large quantities of blackish material, apparently altered blood.

The patient died at 8.30 A.M. on the 31st. He was quite sensible to within half an hour of his death.

Autopsy, thirty-eight hours after death. — Body universally jaundiced, but not deeply so. Ecchymoses on many parts of the skin, on the arms, neck, and legs. Brain and membranes healthy. Pericardium and heart natural, excepting some hypertrophy of the left ventricle. Much œdema of the bases of the lungs. Pleuræ healthy. Liver small, weighing 39 oz.; right lobe especially shrunken, so as not to be much bigger than the left; surface very nodular; on section tough, traversed in all directions by fibrous bands; no iodine reaction. Spleen large, soft, and weighing 1 lb. 5 oz. Stomach full of blood; not much changed; mucous membrane everywhere intact, but stained deeply black by the iron administered; the tissues black, the staining not being merely superficial. The small intestines contained blood wellnigh throughout; mucous membrane dark, but less so than that of the stomach. Large intestines natural. Kidneys large; capsule adherent—tears away tissue; surface quite smooth; on section pale; cortical substance broader than natural. No scar discovered on penis.

CHARING-CROSS HOSPITAL.

HYSTERICAL PTOSIS.

(Under the care of Dr. SILVER.)

THERE has lately been under treatment at this hospital a young woman suffering from hysterical ptosis of the left eyelid. The patient has been cured in a somewhat novel manner by Dr. Poore, who is at present in charge of Dr. Silver's wards. She was told that if her right eyelid was closed at once the left would be raised; then Dr. Poore drew down the right eyelid, and the woman at the same time opened the left eye. Dr. Poore then said that all

that was needed to perfect the cure was, that the right eye should be kept closed for a short time, and proceeded to do so with a strip of plaster and a bandage. After a few days the dressing was removed. The patient has not complained since of the drooping of her left eyelid.

A MODE OF INTENSIFYING HEART-SOUNDS.

(Under the care of Dr. POORE.)

In the out-patient room we also witnessed, among Dr. Poore's patients, a novel application of acoustic principles for the rendering of sounds made in the chest audible to those standing near the patient. The subject of this experiment was a man of middle age with a very loud basic diastolic cardiac murmur. The murmur was one of the loudest we have ever heard. The patient, being stripped, was made to lie flat on his back on a long wooden bench, or couch, without cushions. Dr. Poore then borrowed a walking-stick from one of the students and placed the lower end of it on the sternum between the third costal cartilages. On the opposite end was balanced the sounding-box of a guitar, the aperture being directed towards the thorax of the patient. The cardiac sound became immediately audible to everybody standing round (some nine or ten persons) provided the ear was kept below the level of the guitar. The patient himself became extremely conscious of his murmur, and seemed very much amused with the experiment. There was a considerable amount of cardiac thrill, the vibration of which was felt by everybody on placing a finger on the guitar or the walking-stick. Dr. Poore merely regards the experiment as a curiosity, and does not believe that an apparatus similar to the one he extemporised would be of any use for purposes of diagnosis.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

AN INTRA-ORBITAR DERMOID CYST, RESULTING IN ABSCESS; THE CYST REMOVED SUBSEQUENTLY; SATISFACTORY RESULT.

(Under the care of Mr. W. SPENCER WATSON.)

A. S——, aged twelve years, came to the hospital with the upper eyelid and the orbitar cellular tissue enormously swollen and inflamed, the eyeball being protruded and thrust downwards. Immediately under the external angular process of the frontal bone, a roundish mass was felt, occupying the centre of the swelling; and growing out of a minute orifice in the skin at this point were three or four short hairs. These had been noticed by his mother ever since his birth, and a serous discharge had, till quite recently, escaped from the opening. Now, however, a probe penetrated only one-sixteenth of an inch into the sinus. There being considerable pain and pyrexia, on Feb. 13th an incision was made into the abscess, and about half a drachm of thin pus let out; the pain after this gradually subsided, though it had before been almost constant, with occasional paroxysmal exacerbations. The eyeball remained displaced, and there was diplopia for several days.

Feb. 28th.—Pain and swelling gone; no diplopia; no discharge; a hard circumscribed nodule occupies the site of the abscess.

April 18th.—The hard nodule, though smaller, remains *in situ*, and though causing no present inconvenience, was thought likely to occasion subsequent troubles. Mr. Watson, therefore, dissected it out from the orbitar cellular tissue, through a semilunar incision in the upper eyelid parallel with the eyebrow. It extended as a hard round cord to a depth of about three-quarters of an inch under the orbital ridge, and its removal was much facilitated by passing a small probe from its cutaneous orifice into its cavity during the dissection. The wound was closed by stitches, cotton-wool, and collodion. The crust formed by the dressings above mentioned remained attached to the wound till April 29th, when they were removed, and the wound was found to have healed entirely, without any indication of suppuration, the line of the cicatrix being scarcely distinguishable from the skin on each side. A small collection of pus, of the size of a split-pea, immediately below the line of incision, was opened, and found to be unconnected, or at least not communicating with the original wound.

May 17th.—A small nodule remains in the site of the cyst, which is probably a shrinking cicatricial induration, but giving no trouble to the patient.

The cyst, when removed and cut open, had the usual mucoid lining, with hairs growing from it, so frequently seen in dermoid cysts in this region.

Remarks.—These cysts, though very commonly found external to the orbitar margin, seldom invade the cavity of the orbit, but when they do are very liable to cause trouble, either by their increase in size and consequent displacement of the eyeball, or, as in this case, by accidental suppuration taking place in or around them. The desirability of an early removal of such cysts is strikingly illustrated by the progress of the disease in this instance. The dry dressings here employed offer many advantages in the treatment of any similar wounds the skin edges of which can be accurately adjusted. 1. They give a fair chance of immediate union by favouring close adaptation. 2. If the union by first intention is not obtained they may still be left attached provided no deep suppuration takes place; and by renewing the collodion (or still better Dr. Richardson's styptic colloid), we may avoid any disturbance of the edges of the wound until a healing action has been set up. 3. In either case the pain and discomfort of changing the dressings, of which patients complain so bitterly, are entirely avoided. 4. Even if deep suppuration should occur it will not be always necessary to remove the crust of colloid or collodion, provided an opening be left sufficient for the escape of discharges. The wound in such a case is only in the position of an abscess with a small valvular opening, instead of being an open sore, and it must often be preferable to have the former condition. 5. The saving of time and trouble to the surgeon is very great. In this case the dressings were not touched (except on one occasion for the purpose of reapplying the collodion) for eleven days, and were then removed altogether.

LIVERPOOL NORTHERN HOSPITAL.

CASES OF SEVERE INJURY TO THE HEAD.

(Under the care of Mr. LOWNDES.)

CASE 1. *Compound fracture of skull and great laceration of the brain.*—E. G——, aged twenty-two, a sailor, was admitted on December 20th, 1871. He had fallen a considerable height on shipboard from a spar on to the deck. He was insensible, and much collapsed. There was a very large scalp wound, and part of the left parietal and temporal bones was completely smashed, and portions were driven into the brain. The pieces of bone that were quite detached were removed, but a large portion of the squamous part of the temporal bone, which was quite loose and driven into the brain, but not completely detached, was simply raised into position; much brain-matter escaped. Wet lint was loosely applied. To have six ounces of brandy.

Dec. 21st.—There have been convulsive twitchings of the mouth all night. He has taken a little fluid nourishment; a calomel purge was ordered.

23rd.—He is better; is sensible and makes signs, but cannot speak.

25th.—Great discharge from head; to be dressed with oakum poultices.

January 2nd.—Still speechless; the whole of the right side is now paralysed.

11th.—The wound is healing well, but there is a large piece of bone bare. When he is asked any question he seems to understand, and answers by moving his lips, but makes no sound. He now eats well, and his tongue, which he cannot protrude, is clean. All the right side, both face and limbs, is paralysed.

12th.—He speaks a little to-day.

29th.—He can move his right arm a little, and is able to put his tongue out.

Feb. 5th.—A large piece of dead bone was removed. He now speaks much better, but cannot say "Yes" distinctly. He is sitting up and eating well.

From this time he gradually improved; the wound healed; the paralysis of the face and limbs gradually disappeared, and the speech improved, though he still articulated badly, and there were many words he could not pro-

nounce at all. He was discharged to return to his friends in America on May 27th, 1872.

CASE 2. *Suspected fracture of the base of the skull; partial recovery.*—Michael M——, aged twenty-five, a labourer, was admitted on Nov. 7th, 1871. He had fallen into the hold of a large steamship. There was no scalp wound, but considerable ecchymosis of both eyes, with bleeding from the left ear, the mouth, and the nose. He was insensible and restless; the pulse slow and feeble; the pupils dilated. Brandy was given.

Nov. 8th.—Has had a very restless night; there is some reaction; pulse 84. Ordered a purgative of calomel and jalap; head to be shaved and blistered.

9th.—No change; bowels not moved. To repeat the powder, and give a castor oil enema if necessary.

10th.—Rather better; pulse 84; pupils beginning to act a little; is partially conscious. The enema acted freely in the course of this day, and in the evening he seemed much better; pulse 60.

11th.—Has slept well, and takes food; is quite conscious; tongue furred. To repeat the powder.

12th.—Going on well. In the evening he became more feverish, and had a noisy restless night.

14th.—Muttering delirium. Ordered blisters behind the ears.

16th.—Pulse 84; delirious all night; motions passed unconsciously; tongue and mouth covered with sordes; respiration 24.

20th.—Lies in a heavy, semi-comatose state; can be roused, and shouts occasionally; passes everything in bed.

21st.—Facial paralysis has shown itself on the right side.

27th.—He is rather better and can eat a little meat; to have four ounces of port wine; he has been taking four ounces of brandy daily throughout.

From this time he improved to a certain extent, was able to sit up and move about a little, but still had restless nights and would shout a good deal. He took food well, sometimes greedily, but still now and then used to pass his motions under him. He would talk quite rationally, but was sly and inclined to be mischievous, and required watching. On Dec. 13th he was removed to the union hospital.

The appearance of the eyelids, the bleeding from the left ear and the nose and mouth, the subsequent facial paralysis, and the general progress of the case, all point to fracture extending to the base of the skull.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

WEDNESDAY, JULY 3RD, 1872.

DR. BRAXTON HICKS, F.R.S., PRESIDENT, IN THE CHAIR.

THE following gentlemen were elected Fellows of the Society:—Wm. Michell Clarke, M.R.C.S. (Clifton), and James Roger Thomas, L.R.C.P. (Tinnivelly).

A communication from Professor Bezley, of Kieff, was read, accompanying two specimens of Russian Pelves which he had presented to the museum.

Professor TRENHOLME, of Montreal, read a paper "On Irregular Contraction of the Uterus," and stated that in such cases he had found adhesions existing between the decidua and the uterine surface at term. The production of this form of contraction and its consequent results were attributed to laceration of the muscular fibres at the point of adhesion, the parts lacerated acting, during attempts at contraction, as direct excitants of the spasm of the walls of the organ. When the adhesions were near the os uteri they not only prevented its dilatation, but also rendered the contents of the womb unable to elongate and adapt themselves to the diminished capacity of the cavity, and neutralised the efficiency of the contraction. When the adhesions existed on one side, the vaginal pouch of waters was formed by the membranes of the opposite side, and this in its turn necessarily forced the neck of the womb to the side on which the adhesions existed. In some rare cases adhesions were found between the neck of the uterus and the vagina, which affected labour in a similar way. The treatment recommended was to pass the finger gently between the united surfaces, and effect their separation. When the adhesions were beyond the reach of the finger, rupture of the membranes should be resorted to for the purpose of allowing the child's head to slide over the decidua, since the adhesions prevented the natural passage of the membranes over the surface of the uterus. Attention was drawn to the fact that in all probability the determining cause of labour at term was due to the separation of the decidua having taken place to such an extent that the contents of the womb acted as a foreign body, and thereby induced efforts at expulsion. Hour-glass and other irregular contractions of the womb after delivery were attributed to the same cause as produced irregular contraction during the first and second stages of labour.

The PRESIDENT considered Dr. Trenholme's paper opened up a new point for clinical investigation. He had no doubt that the adhesion in retained placenta determined the position of irregular uterine contractions. But there was also a condition which was not dependent on placental adhesion. He had several times noticed in passing the hand within the uterus that the walls would be in one part hard and firm, at another relaxed and flabby; and then gradually the firm part became relaxed while the relaxed part would become firm.

Dr. AVELING read a paper "On Post-mortem Parturition." He referred to forty-four cases of the kind, and from these deduced the following conclusions:—1. Expulsion of the contents of the uterus may take place after death without the aid of art. 2. This may occur in cases in which no symptoms of natural parturition can be discovered before death. 3. Many of the manœuvres and accidents which take place in labour during life may occur in post-mortem parturition, such as expulsion of the placenta, spontaneous evolution of the fœtus, and prolapsus, inversion, and rupture of the uterus. 4. Expulsion of the uterine contents and accidents which accompany labour may be caused after death either by the contracting power which persists in the uterus after the death of the rest of the body, or by the pressure exerted upon the uterus by gases of decomposition pent up in the abdomen. 5. Of these causes the latter is the more frequent. 6. After the death of its mother a child may continue to live in the uterus for many hours. 7. After the death of a woman undelivered, no time should be lost in removing the fœtus.

The PRESIDENT observed that if we called in rigor mortis to explain the post-mortem parturition, we must also remember that rigor mortis would also affect the rigidity of the passage. The question would then be, does the uterine rigor last longer than that of the passages?

Dr. SNOW BECK said that some of the older cases of the kind should be accepted with some doubt as to their accuracy. Dr. Beck then described a case of partial expulsion of the child after the death of the mother, which he had himself noticed.

Dr. MADGE said it was an important point how soon after the death of the mother one would be justified in opening the womb to save the child. In one case of convulsions Dr. Madge did this twenty minutes after death, but the child was dead. There were no signs of uterine action after the mother's death, and on removing the child the uterus remained in its uncontracted state.

EPIDEMIOLOGICAL SOCIETY OF LONDON.

JUNE 12TH, 1872.

MR. ROBERT LAWSON, PRESIDENT, IN THE CHAIR.

A paper was read by Dr. SMART, C.B., R.N., "On Asiatic Cholera in Africa." Africa, from its geographical features and social conditions, possesses four epidemiological regions:—1. Egypt and Tripoli. 2. The western basin of the Mediterranean so far as Algeria and Morocco form part of it. 3. The West Coast south of the Sahara. 4. The East Coast from Abyssinia to the Portuguese settlements. Egypt, next neighbour to Arabia, has not suffered invariably when Arabia has done so. Its visitations have been of short duration. It has on one occasion only been the source of European infection, in 1865, and, on the other hand, it would appear to have been infected from Europe in 1854. Tripoli, although not always involved in the epi-

demics of Egypt, as in 1847–48, and '54, has had its visitations concurrently with others of that country. Tunis has generally followed on Algeria after a year's interval. In 1859–60 it escaped when Algeria was infected. Egypt was also then untouched, Arabia being infected. The western basin of the Mediterranean, except in 1865, when it received its infection from Egypt, has participated in the epidemics of northern Europe imported into its Atlantic States. But in 1853, and again in 1859, its epidemics are said by some to have had regional origin and growth in the Peninsula. Algeria and Morocco have been always indebted to the European shore for the "contagion" of cholera, the former generally to France, except in 1834 and 1859, when it was so to Spain, and the latter to Spain usually. Morocco was free in 1865, when Spain was severely visited, but this was reversed in 1868, Spain being then free and Morocco diseased, having relighted the epidemic that had been present in Algeria in 1866–67, and in Tunis in the latter year. Both Morocco and Tunis had excluded cholera by quarantine in 1865, but they failed later on their land frontiers. The West Coast of Africa was visited for the first and only time in 1868–69, when the disease appears to have been carried from Fez across the Sahara to an upper trading station on the river Senegal by caravans. It then extended to the Gambia and Rio Grande through the inland stations, and was at the same time present in the State of Bonadoo, 800 miles inland, betwixt the watersheds of the Niger and Gambia. The East Coast of Africa, from Abyssinia to the Portuguese settlements, has had a series of epidemics entirely apart from those of Egypt. Abyssinia is in constant communication with Arabia, and during the season of the N.E. monsoon, from December to March inclusive, Zanzibar has many arrivals from India, the Persian Gulf, and Arabia, from either of which cholera might be conveyed, to be spread from it southward by means of the native trading craft. The first visitation was in 1836–37, affecting almost exclusively the negro race. It crept along the coast north of Zanzibar, and from that port to the stations south of it, remaining only a few weeks in Zanzibar. The second visitation was in 1856. It was confined to Abyssinia. Arabia had suffered in the two preceding years, and Zanzibar was undergoing a heavy loss by small-pox in the same year. The third visitation fell in 1858–59, whilst Arabia was in an epidemic from Muscat to Djeddall. The disease appeared early in the monsoon in the ports south of Guardafui, and extended to Mozambique with great epidemic force. At the fourth visitation of 1865, the year of the last great epidemic that spread into Europe from Arabia, the disease showed itself very early in the year in Abyssinia, and at the fair of Berbera on the south shore of the Gulf of Aden. From this latter place it was conveyed by caravans to the coast of the Indian Ocean, but, being late in the monsoon season, it did not extend to Zanzibar. The fifth and last visitation of Zanzibar, in 1869–70, has been traced by Dr. Christie as far as the Galla country, travelling slowly southward among pastoral tribes. It seems not impossible that it may have been conveyed into Africa by the negro pilgrims of Soudan, called "the Takroories," or people of Tocrur, which embraces the fertile plains from the Nile to the Niger. This race was the first to suffer from the epidemic in Arabia, and they may have carried it home with them into the centre of Africa, from which it may have extended westward to Bonadoo by the course of the Niger, and southward by the Nile to the place where the Arab caravans from Zanzibar fell in with it, and took it back with them to that emporium, from which it was carried again inland by caravans that followed a more southerly direction, and northward by native craft to Socotra. In 1870 it spread southward as far as Quillimane, and seaward to the Cormoro Islands and Madagascar, and from it to Mauritius, an island that had on previous occasions been infected direct from India, or had grown its own epidemics of cholera. A remarkable feature of the epidemics of the East Coast of Africa is that they have, with the exception of that in 1865, arisen in the apogee of the great epidemic cycles, when about to cease beyond the limits of Asia, and not when first issuing forth from them, which is strange if we consider its direct intercourse with India. The history of cholera in Africa bears very strong evidence to the theory that its spread is entirely regulated by human intercourse, and timed relatively to the rapidity or slowness of that intercourse, Africa in this respect presenting the very antithesis of what is shown where mankind travel by steam power; consuming years in effecting as much as is there completed in months. In the African epidemics the native negro races have suffered incomparably more severely than the Arabs, Indians, or Europeans present with them. On the Mediterranean shores of Africa there have been repeated instances of the abortive introduction of the contagion of cholera, and others where epidemic intensity has speedily followed on apparently trivial importations. In Algeria the outbreaks have always followed on a history of importation, and they have been manifested in crowded hospitals, prisons, and barracks and camps, and evacuation of these, wherever it has been applied to such foci, has been invariably successful in cutting short the epidemic. Ample proofs have been amassed of the efficacy of strict quarantine in excluding cholera on the seaboard, although it has appeared in parts thus temporarily exempted after suspicion had ceased and quarantine relaxed, being introduced by a slower land intercourse.

Reviews and Notices of Books.

Nuova Collezione di Opere Mediche. No. I.: *Dell' Età Critica nello Stato di Salute e di Malattia. Trattato practico delle Affezione cui van soggette le Donne nel declinare della Vita.* Per EDWARD JOHN TILT. Prima Versione Italiana del Dottore EUGENIO REY. Torino: Fratelli Bocca. 1872.

THIS volume is the first of a series which deserves at our hands the most cordial of welcomes. Following the example of our New Sydenham Society, associations have been formed, first in Germany and now in Italy, for the translation of foreign medical works into the vernacular of these countries respectively. In Germany, indeed, the movement has taken an even bolder initiative. Clubs have been formed at nearly all the great medical schools for the acquisition of modern languages, and the perusal of the scientific literature contained in them. This practice, if systematically and efficiently carried out, would of course render the translator's work superfluous. But, in the meantime, a well-chosen series of translations from the best foreign *savants* must be welcome in every country, and most of all in Italy and France, where a knowledge of English, for example, is (for ethnological reasons) a much rarer accomplishment than in Germany, and where the scientific spirit has not yet attained that noble catholicity so distinctive of the numerous educational centres between the Vistula and the Rhine.

"For every additional language one knows, he is so much the more a man"—the saying of the Emperor Charles V.—holds particularly true of the physician, who is so dependent on contemporary observation and research, and so accessible to new or modified light in the practice as in the theory of his profession. For the intellectual "naturalisation," so to speak, which the acquisition of a foreign tongue confers on the acquirer, good translations of its literature are the best substitutes—translations at once literal and idiomatic, as distinguished from the paraphrases or condensations so common in the last century. Our own "New Sydenham Society" presents, on the whole, as fair specimens as need be of the kind of renderings required, and seem to have furnished to the Italian translator of the book before us the standard of closeness and completeness to be aimed at. Appropriately enough, he begins the series with Dr. E. J. Tilt's well-known work, the subject of which has always possessed a peculiar interest for Italian physicians. At the great schools of Bologna, Pisa, and Padua—the last of which was the scene of Harvey's medical education and first inquiries into the fœtal circulation,—gynæcology engaged the keenest attention; while Morgagni's investigations include the first-observed case

of exfoliation of the mucous membrane of the uterus, as well as peculiar forms of the ulceration of that organ, and, above all, the first systematic recognition of the diseases of the ovaries. In the last century Morgagni's mantle fell on other Italian pathologists, like Carlo Sacchi, who so ably criticised the surgical suggestion of ovariotomy; and on Marcandi of Turin, who in 1788 communicated to the Academy of Medicine in Paris an instance of vaginal ovariocentesis. The first successful case of ovariotomy was performed by Dr. Emiliani, of Faenza, in 1815; while in the interval between that date and 1850 the acute affections of the ovaries received much elucidation from the researches of Pistocchi of Bologna. To these names we have only to add those of Giordano of Turin, Tanturri of Naples, Rizzoli of Bologna, Vanzetti of Padua, Peruzzi of Lugo, Bezzi of Modena, Bottini of Novara, Landi of Pisa, De Cristoforis of Milan, Malagodi of Fano, and Cicarelli and Corradi of Rome,—all of whom have laid or are laying gynæcology under deep obligations; and our readers will acknowledge the propriety of commencing a series of medical translations from English into Italian with the acute and exhaustive treatise of Dr. Tilt.

We have read Dr. Rey's rendering with much pleasure, and, as far as our necessarily imperfect knowledge of Italian entitles us to judge, we have found it at once faithful and flowing. Of course, instances occur in which it is impossible to give an exact equivalent in Italian for expressions in English like "the dodging-time." In such a case Dr. Rey appends the note: "*Io lo chiamerei il tempo dell' acquietamento delle funzioni menstruali*, quantunque letteralmente si debba tradurre il tempo nel quale la menstruazione va per isbieco, opera raggiri, vual sfuggire." Bearing in mind, moreover, that his translation is addressed to Italians who may not possess the knowledge of English obstetrical literature which Dr. Tilt often (and naturally) assumes, Dr. Rey appends an explanatory note which serves the double object of enlightening his readers as to the original context, and attesting his own capabilities as interpreter between English and Italian medicine. In these *Note del Traduttore* Dr. Rey sometimes advances an important piece of criticism generally confirmatory of Dr. Tilt's thesis, while everywhere he demonstrates his vigilant and intelligent appreciation of the exposition. To such of our readers as desire to improve their command over Italian we could conceive no better exercise than first to renew acquaintance with Dr. Tilt's work (itself a salutary occupation), and then peruse it in the language of Dr. Rey. The series, we may add, appears simultaneously at Turin, Florence, and Rome, the three successive capitals of Italy, under the auspices of that enterprising firm the brothers Bocca, booksellers and publishers to His Majesty King Victor Emmanuel.

Cancer, its Varieties, their Histology and Diagnosis. By HENRY ARNOTT, F.R.C.S., Assistant-surgeon to St. Thomas's Hospital, and Joint Lecturer on Morbid Anatomy in the Medical College. London: J. and A. Churchill. 1872.

THE author of this book (which comprises eighty-six pages only of ordinary octavo) has had unusually good opportunities in the wards of the Middlesex Hospital of studying the subject about which he writes. As is pertinently indicated in the preface, it is absolutely necessary that medical men should be more conversant than they are at present with microscopic work in connexion with cancer and its varieties, and that until this is the case they can neither hope to arrive at a correct diagnosis, nor *a fortiori* to know how much or how little benefit has been produced by any particular remedy that has been used. Hence, the chief aim of the author has very properly been to aid diagnosis, simplify microscopic work, and classify, as far as is possible, the various morbid growths that have all, until a comparatively recent date, been generically called cancer. Chapters are devoted severally to carcinoma, sarcoma, lymphadenoma, and epithelioma, and the author concludes by a careful, concise, and very practical summary of the prognostic and therapeutical value of accurate diagnosis. A great many woodcuts are given illustrative of the microscopic appearances, and if any general practitioner chooses in his intervals of leisure to work his microscope with a quarter-inch lens in an ordinarily careful way, he will find Mr. Arnott's book, in the examination of malignant growths, a useful and very comprehensible companion.

OUR LIBRARY TABLE.

Injuries and Diseases of the Jaws. By CHRISTOPHER HEATH, F.R.C.S., Surgeon to University College Hospital, Teacher of Operative Surgery in University College, London, &c. Churchill, 1872.—This is the second edition of a work published in 1868, being the Jacksonian prize essay for the year 1867. It contains the results of Mr. Heath's further observations, as well as additional information derived from the labours of others, since the issue of the previous edition. At pages 187—192 a very full account is given of the nature and structure of "odontomes," with a detailed history of the five instances of this disease on record. In connexion with this subject, the author includes the researches of M. Broca, Mr. Salter, and Mr. Charles Tomes. The work is profusely illustrated with excellent woodcuts, affords complete information on the subject of which it treats, and—what we so often miss in books of the prize essay type—it bears evidence of having been in great part founded upon or tested by the experience of its author.

Sewer Gas and how to keep it out of Houses. A Handbook on House-Drainage. By OSBORNE REYNOLDS, M.A., Professor of Engineering at Owens College, Manchester, Fellow of Queen's College, Cambridge. London: Macmillan and Co. 1872.—The object of this little volume is to suggest a plan for preventing the back-flow of gas into our houses. Of this plan the author says that he has now had four years' successful experience. It is simple and cheap enough, and easy of application, its principal feature being that of having a break or trough in the pipe which connects the house with the sewer. The book consists of three sections: the first, a description of the plan recommended for disconnecting the house and sewer; the second, on the purpose and general arrangement of house drains; and the third, on the way in which these give rise to stinks, and the best means of preventing their doing so. For carrying out the first it is necessary that all the drains in the house should flow into one pipe, so that there may be only one connexion between the house and the sewer, and in this pipe there must be a trap of somewhat peculiar construction. The description is of course much facilitated by diagrams, but it may be given nearly in the author's own language. A man-hole or shaft is sunk from the surface to the pipe, the floor of the man-hole being two feet above the bottom of the drain. Across this floor is an open trough which takes the place of the pipe; this is about two feet deep, and of the same width as the pipe. The ends of the pipe which are connected with the trough are so depressed that the water stands in the trough about half an inch above the orifice on the sewer side, and an inch above the mouth on the house side. In order to prevent a scum forming on the surface of the water in the trough, the pipe from a roof-spout may be arranged so as to discharge itself on to the top of the trough. In most cases a simpler plan will be found to answer quite as well; instead of having a man-hole and trough, a special earthenware trap is used. The

best position for such a trap as this will be determined by circumstances, but it must be somewhere between the house and the sewer, branch sewer, or cesspool into which the house drains. As a general rule the nearer to the house the better. Perfect discontinuity should be ensured for the sink-pipe by having it discharge above ground into an open trough or gutter. Traps in connexion with these pipes are not to be relied upon. The author contends that if the effort of the gas to escape from the sewer were the only reason why it enters the house, this would be satisfied by providing it with a more ready means of exit from the sewer, such as gullies, shafts, &c. But as the suffocated houses suck away at the drains, air will be drawn out, however many other openings there may be into the sewer, which only serve to let the fresh air in. Hence no amount of ventilating shafts can be efficient to cure the evil. We confess, however, that we regard a free communication between the drain-pipe and the external air at the trap or trough as a necessary safeguard. There are so many disturbing causes at work, that it is expedient to make "assurance doubly sure." We have not ourselves tried, but some experiments as to drainage might be successfully illustrated by a simple apparatus.

Strychnia: its source, chemical relations, physiological action (typical and irregular), mode of detection, and methods of treatment in cases of poisoning. By JAMES ST. CLAIR GRAY, M.D., &c. Glasgow: Dunn and Wright.—Dr. Gray here gives us a tolerably complete exposition of some the most recent views of the properties and action of the deadly loganaceous alkaloid, and although perhaps some physiologists might demur to the manner in which certain theories are advanced and deductions wrought out, and others might think that more should have been said touching the method of differentiation of the symptoms of poisoning by strychnia, from tetanus, idiopathic and traumatic, there can be no doubt that Dr. Gray has written a careful essay, well deserving perusal.

The Hygiene of Air and Water. By WILLIAM PROCTER, M.D., F.C.S. London: R. Hardwicke.—The fiery cross of hygiene is now going through the land; people are questioning each other as to what may be done to diminish and curtail preventable disease, and a flood of literature dealing with the conditions of health and sanitary improvements comes pouring in upon us. The little book under notice contains much information likely to be of service to those who, having a laudable desire to assist in the efforts now being made sanitation-wards, wish to meet with a simple and trustworthy guide, which, without confusing their minds with technical lore and finely-wrought theories, shall yet present a medium through which they may ameliorate certain malconditions of health, and modify those physical concomitants which go so far in determining happiness and comfort. Dr. Procter treats in a lucid manner of the following points of importance: the causes of atmospheric impurity, emanations from animal and vegetable decompositions, sewer gas, ventilation, disinfectants, antiseptics, hygiene of the sick room, water contamination, &c. Although Dr. Procter cannot claim any originality for his treatise, his work may prove very useful, more especially to non-professional readers.

The Sewage Utilisation Delusion. By "VERITAS." London: W. J. Johnson.—This is a crushing pamphlet exposing the fallacy of making artificial guano by the A. B. C. process. The writer offers to stake £5000 to produce six processes at least equal to the A. B. C. both in purity of effluent water and economical value. He affirms that there are but two possible ways of obtaining the full economical utilisation of the valuable manures now polluting our rivers and shores—viz., either the use of waterclosets must be abandoned, and the valuable matters deodorised and collected, or the sewage must be utilised by irrigation. He maintains, and we entirely agree with him, that all processes for the precipitation of manure from large masses of water are opposed to scientific laws, and, economically, a mistake.

DR. CHARCOT ON OVARIAN HYPERÆSTHESIA.

DR. CHARCOT, physician to La Salpétrière Hospital, and vice-professor at the Paris School of Medicine, lately gave a clinical lecture on the above subject, which we are glad to have the opportunity of laying before our readers.

GENTLEMEN,—By the picturesque, and certainly very practical, denomination of partial or local hysteria, English physicians are accustomed to designate the greater part of the phenomena which persist in a more or less permanent manner in the intervals of convulsive attacks in hysterical subjects, and which almost always permit us on account of the character offered by such phenomena, to recognise the great neurosis for what it is, even in the absence of convulsions.

Hemi-anæsthesia, paralysis, contraction, fixed painful spots, occupying various parts of the body (rachialgia pleuralgia, hysteric nail, &c.) belong, according to this definition, to local hysteria.

1. Amongst these various symptoms there is one that, on account of the predominating part which, according to my view, it plays in the clinical development of certain forms of hysteria, deserves to occupy all your attention. I refer to the pain which occurs in one of the sides, especially the left, but which may occupy both sides, at the extreme limits of the hypogastric region. I allude to the ovarian pain which I slightly noticed in my last lecture, but I do not wish to employ this designation without reserve before having justified—and I trust it will be an easy task—the hypothesis which it implies.

That pain I will presently, so to say, make you feel with your fingers; I will make you recognise all its characters in presenting to you five patients who form almost the total amount of hysteric females now existing among the 160 patients that make up the division devoted in this hospital to women affected with convulsive and incurable diseases, and reported to be free from mental lunacy.

2. As you see by this simple indication, iliac pain is a most frequent thing in hysteria; the fact has been long recognised by the majority of observers, and it will be enough to name, in times not too remote, Lorry and Pujol, who more particularly pointed out the existence of hypogastric and abdominal pains in hysteric subjects.

It is strange after this reference to find Brodie,* who was the first, perhaps, to recognise the clinical interest of the study of local hysteria, not mentioning in any special manner the existence of abdominal pains.

It seems quite a thing of tradition that the practical sense of English surgeons should be attracted by the clinical difficulties which the local symptoms of hysteria present. Mr. Skey, who in this respect has closely followed Brodie, in a very interesting series of lectures on the local or surgical forms of hysteria (London, 1870), as he calls them, completely describes the iliac pain, or pain of the ovarian region, which he thinks very common, and which, according to him, but contrary to what is really observed, is especially met with in the right side.

You know that, in France, Schutzenberger, Piorry, and Négrier have especially insisted on this symptom, which they without hesitation attach to the abnormal sensibility of the ovary.

In Germany, Romberg has on this point followed Schutzenberger's opinion; there is need to remark, however, that among our contemporaries, the German authors, for the most part, pass almost entirely in silence all that relates to the hypogastric pain. Such, for instance, are Hasse and Valentiner. It is, therefore, evident that this symptom, after having enjoyed a certain favour, probably on account of the theoretical considerations which attach thereto, is nowadays in a kind of way out of fashion.

Symptoms, as you see, also have a fate: *Habent sua fata*.... I should not be surprised to find that the influence, albeit

* Lecture illustrative of certain local nervous affections, 1837.

so legitimate, exerted by M. Briquet's work has contributed greatly to this result. It now behoves us to see to what extent we ought to follow this eminent author in the path which he has opened up.

3. It is not that M. Briquet has not recognised the frequent existence of fixed abdominal pains in hysterical subjects; nay, he has coined a word to designate such pains—"cœlialgia," from κοιλιος, abdomen,—and a word, though it be only a word, is yet something to attract the attention of the mind. In 200 cases of hysteria out of 450 M. Briquet has met "cœlialgia." However, I must call your attention to the fact that by this name he includes the pains of the upper part of the abdomen and the pains of the hypogastric and iliac regions; but it is agreed that these latter count among the most common.

At first sight it therefore seems that there is only an apparent difference of opinion between M. Briquet and his predecessors; yet it is not so, and I will show you what an abyss separates them from him.

Whilst MM. Schutzenberger, Piorry, and Négrier place in the ovary the principal seat, the centre, so to say, of the iliac pain, M. Briquet sees in that symptom only a mere muscular pain, a hysteric *myodynie*. According to M. Briquet: 1, the pain of the pyramidal of the inferior extremity of the rectus muscle has been mistaken for a uterine pain; 2, the pain of the lower portion of the oblique muscle answers to the pretended *ovarian pain*. Such is the thesis upheld by that author.

4. Now, let us, gentlemen, seek to make out on what foundation that thesis can be based. In order to attain this object I must make appeal to the cases which I have been able to gather in this hospital on a vast scale. I shall therefore describe the pain such as I have learned to know it. (1) Sometimes it is an intense pain, very intense occasionally; the patients cannot bear the slightest touch, even the weight of the bedclothes; they instinctively shudder and withdraw from the investigating finger. If to these symptoms you add a certain degree of swelling of the abdomen, you have the clinical display known by the name of false peritonitis, or *spurious* peritonitis of the English physicians. It is obvious that in these cases the muscles and the skin itself play their part. The pain then occupies a very extensive portion of the surface, and therefore it is rather difficult to localise it. However, Todd,* in a remark of which I have often stated the truth, mentions in certain cases a cutaneous hyperæsthesia, circumscribed to a rounded portion of the skin, and measuring from two to three inches in diameter. This hyperæsthesia is seated partly in the hypogastrium and partly in the iliac fossa, and would answer, according to that author, to the situation of the ovary. (2) At other times the pain is not spontaneously complained of by the patient. It must be found out by means of pressure, and in such instances the following phenomena are to be noted: (*a*) The skin presents anæsthesia all over. (*b*) The muscles, when relaxed, may be pinched and taken up without pain. This first exploration shows that the seat of pain is not in the skin or muscles, and therefore it is necessary to carry on the investigation further, and then, on penetrating into the abdomen, as it were, with the fingers, the true source of pain is discovered.

This manœuvre permits the investigator to state that the seat of pain is about fixed, that it is always about the same, so that not infrequently the patients designate it with perfect concordance. Through a horizontal line passing through the anterior and superior iliac processes, draw perpendicular lines limiting laterally the epigastrium, and at the crossing of the vertical lines with the horizontal one is found the painful spot, as the patient will tell you, and as pressure exerted with the finger will make quite obvious.

(To be concluded.)

* Clinical Lectures on the Nervous System.

PRECAUTIONS AGAINST CHOLERA.

A CIRCULAR letter in the following terms has been lately issued to most of the principal eastern ports:—

"SIR,—Information has reached the Local Government Board that cholera, which has for some time been extensively prevalent in the south of Russia, has lately reappeared, and is spreading at St. Petersburg. Up to the 9th July, 197 cases had occurred there, of which 81 have been fatal.

"In July and August of last year Orders of Council were made providing for the examination of ships coming from ports infected with cholera; and the attention of the sanitary authorities of ports (especially of such as had much trade with the Baltic) was called to the need for active measures being taken to prevent, if possible, the importation of the disease.

"The Orders of Council made last year in regard to cholera are still in force; and as the disease is now prevalent in St. Petersburg, and, if it should follow its usual course, will probably, later in the season, extend, as it did last year, to other Baltic ports, and perhaps to Hamburg and Altona, the Local Government Board request that the attention of the may, without delay, be again directed to the above-mentioned orders, and that the necessary measures may be taken, as regards the examination of shipping, and the provision (if this has not already been made) of hospital accommodation, in order to prevent any case of cholera, or any articles infected with cholera, being landed without due precautions having been taken against the spread of infection.

"In urging the sanitary authorities of ports to provide, without delay, the necessary hospital accommodation for the treatment of cholera patients brought in by shipping, I am directed to observe that port-hospitals for infectious diseases must not be considered as necessary only on such emergencies as the present, but as ordinarily requisite to secure as far as possible the population of sea-port towns from the importation of infectious diseases; and that such hospitals, although now required to meet a special danger, will, if properly constructed, be found of permanent service.

"Floating hospitals, which are especially suited for the reception of cases from shipboard, were constructed last year in the Tyne, at Lowestoft, and other places; and your Board, if it has not already an available hospital, would do well to ascertain from the Shipping Inspection Committee of the Tyne ports (Tynemouth), or from the Lowestoft Improvement Commissioners, the results of last year's experience. With regard to hospitals on land, and also for information as to the general principles to which attention should be paid in hospital construction, I herewith enclose a copy of a Memorandum, recently revised, on Hospital Accommodation to be given by Local Authorities.

"I am to request that the Local Government Board may be informed as to the measures which the takes in the above matters.

"I am, Sir, your obedient servant,

"Local Government Board (Medical Department), Whitehall, S.W., July, 1872."

THE INTERNATIONAL OPHTHALMOLOGICAL CONGRESS.

THE meeting of this quadrennial congress, which will commence on Wednesday evening, the 31st inst., at the Royal College of Physicians, appears likely to be numerously attended and highly successful. Among the distinguished visitors expected are Professors Donders and Zehender, Drs. de Wecker, Horner, Warlomont, Agnew, Noyes, Joy Jeffries, Williams (of Boston, U.S.), and many others. The meeting of the 31st will be for the appointment of office-bearers, and other formal business; and the scientific meetings will be held on the three following days, from 11 A.M. to 1 P.M., and from 3 to 5 P.M., when papers will be read and discussed. A *conversazione* will be given on Thursday evening by Mr. Bowman, and on Friday evening by Mr. Critchett; and on Saturday the proceedings will be terminated by a dinner at the Crystal Palace.

Among the papers already promised are the following:—

Mr. BADER.—1. Case of pannus. 2. Case of tinting corneal opacity. 3. Case of conical cornea.

Mr. BOWMAN.—1. New methods of dividing the iris. 2. New methods of excising structures in the pupillary region. 3. On some new instruments for the treatment of lacrymal

obstruction. 4. On some uses of eye trephines, and on new forceps for certain purposes. 5. On operations for conical cornea.

Mr. BRUDENELL CARTER.—On some improved instruments: (1) a demonstrating ophthalmoscope; (2) a perimeter; (3) scissors for iridectomy and for strabismus.

Dr. DUDGEON.—On mechanism of visual adjustment.

Mr. JABEZ HOGG.—On atrophy.

Mr. HUNT (Manchester).—On cerebral amaurosis.

Dr. JOY JEFFRIES (Boston, U.S.).—1. On Passavant's operation. 2. On use of ether in ophthalmic surgery.

Mr. POWER.—On transplantation of cornea.

Dr. ARGYLL ROBERTSON (Edinburgh).—1. Case of unilateral irideremia. 2. Case of division of superior rectus.

Dr. TAYLOR (Nottingham).—On extraction of cataract.

Mr. PRIDGIN TEALE (Leeds).—Treatment of symblepharon by transplantation.

Mr. BOWATER VERNON.—Observations on three cases of tumour of the eyeball.

Mr. SPENCER WATSON.—On a convenient method of applying cold to the eye.

Dr. DE WECKER (Paris).—On the surgical treatment of optic neuritis.

Dr. WOLFE (Glasgow).—On traumatic cataract.

Analytical Records.

SYRUP CALCIS LACTO-PHOSPHATIS.

THIS preparation, made by Messrs. Wright, Sellers, and Layman, manufacturing chemists, of Southwark-street, London, consists of phosphate of lime dissolved in lactic acid, as recommended by Dr. Dusart. Now, this acid may be termed the natural solvent for phosphate of lime introduced into the stomach, because it is by means of that acid that it is held in solution in that organ. In prescribing, therefore, phosphate of lime, the physician cannot do better than give it in the form of the syrup of that salt, which keeps well, and is of a very agreeable flavour. When administered in the undissolved state much of the calcareous phosphate doubtless escapes from the system without its ever having been absorbed. The dose is from half a drachm to two drachms, and each drachm contains two grains of the dry phosphate of lime.

LŒFLUND'S MALT EXTRACT BONBONS.

These bonbons, made by Ed. Lœflund, in Stuttgart, are exceedingly well prepared. They retain the full flavour of the malt extract, will keep for any length of time, and form a most convenient and agreeable preparation of that valuable remedy, the unfermented extract of pale malt. Van Abbott, 5, Princes-street, Cavendish-square, is the agent.

EXTRACTUM ASPLENII.

This is a powerful bitter tonic and antiperiodic, possessing many of the virtues and properties of quinine. In cases, therefore, in which that remedy fails, or is not well tolerated, the extract of asplenium may be tried, and we believe that in many the result will be found to be very satisfactory. This extract is prepared by R. Verity and Co., of Warwick-street, Regent-street, London.

VIN BI-DIGESTIF DE CHASSAING.

This preparation is one both of novelty and value, and is founded upon sound chemical and physiological principles. While pepsine is the natural solvent or digestive for nitrogenous aliments, it has little or no effect upon the fæculent constituents which enter so largely into the composition of the food of man; and there is no doubt that some of the disorders of digestion arise from the malassimilation of the starchy elements. Now the proper digestive for these is diastase; and in the bi-digestive wine, syrup, and pills, of M. Chassaing of Paris, those two most important principles, pepsine and diastase, are combined in suitable proportions.

MAUGHAM'S SOLUTION OF IRON.

The number of preparations of iron is so great that one is at times somewhat puzzled to determine which to select; and yet, when one comes to study the several forms, it is found that they all, or nearly all, differ from each other in several important particulars, and that sufficient grounds exist for a careful selection and discrimination. This well-known and long-established preparation is a particularly palatable one, free from roughness or astringency, and from that inky taste which is so disagreeable; so pleasant is it that even children will take it without difficulty, as it is rather grateful and refreshing than otherwise, especially when combined with a little syrup of any kind. The proprietor, Mr. Maugham, of Park-road, Clapham, cites the testimony of many medical practitioners in favour of this preparation.

SPARKLING BLAND.

This preparation is one of considerable novelty. It is prepared on the same principle as koumiss—that is to say, by the fermentation of milk, the principal portions of the butter and caseine being removed. During this fermentation lactic acid, which is of so much importance in digestion, as well as carbonic acid, from the decomposition of the sugar of milk, are largely developed; and thus is produced a very wholesome, agreeable, and refreshing effervescent beverage, to which the name of "Sparkling Bland" has been given. This is variously flavoured with ginger, lemon, almond, and orange, to suit the palate.

Sparkling Bland is recommended by the manufacturer, Mr. Chapman, Duke-street, Portland-place, as a substitute for alcoholic drinks, and a tonic for promoting digestion.

BLANCARD'S IODIDE-OF-IRON PILLS.

It is very often desirable that this combination should be given in the form of pills; but it is not an easy matter so to prepare them that the preparation shall not, by keeping, become decomposed, with the oxidation of some of the iron and escape of a portion of the iodine. In the pills of M. Blancard this difficulty appears to be fully overcome, and the pills seem everything that can be desired.

SEDATIVE SYRUP OF BITTER ORANGE PEEL WITH BROMIDE OF POTASSIUM.

This is one of several very useful and elegant compound preparations forwarded us by J. P. Laroze, chemist, of Paris. The combination of the bromide with the syrup of bitter orange peel is a good one; the taste of the potash salt is much improved thereby, while the remedy is in a form but little liable to alteration by keeping. The value of bromide of potassium is now too well established to require any remarks from us in reference thereto. We may state, however, that Dr. Mouchard Martin has proved it well adapted, from its sedative action, to some nervous ailments of infants and young children, especially those arising from the irritation of dentition.

DEPURATIVE SYRUP OF BITTER ORANGE PEEL WITH IODIDE OF POTASSIUM.

This is another very useful and pleasant combination of J. P. Laroze, possessing the same peculiarities and advantages as the preceding preparation. According to M. Laroze, this mixture is certain in its action, unalterable, and capable of bearing all voyages and temperatures.

FERRUGINOUS SYRUP OF BITTER ORANGE PEEL AND QUASSIA WITH PROTO-IODIDE OF IRON.

This also is a useful combination, being a tonic by reason of the iron, alterative from the iodine, antispasmodic from the quassia, tonic and carminative due to the bitter orange peel. The form of syrup renders the combination palatable, and tends to the preservation of the several constituents.

BROCKEDON'S COMPRESSED BICARBONATE-OF-SODA PILLS.

The alkali is, by compression, and without the admixture of any foreign substance, reduced into little masses of somewhat the form, size, and weight of ordinary five-grain pills. In this condition the remedy is brought into a very portable, concentrated, and convenient form. It would be well if some unobjectionable plan of coating these pills could be devised, in order still further to obviate the unpleasant alkaline taste of the soda.

BROCKEDON'S COMPRESSED BICARBONATE-OF-POTASS PILLS.

This preparation resembles the preceding in the form in which it is prepared, and the same observations therefore equally apply to it. These articles may be obtained of Messrs. Newbery and Sons, Newgate-street, London.

THE LANCET.

LONDON: SATURDAY, JULY 27, 1872.

THE Government would have incurred a heavy responsibility if they had permitted the prorogation of Parliament without the passing of a Public Health Bill. Happily they have not done so; and it is no slight compliment to the tact and perseverance of Mr. STANSFELD that he has been able so completely to disarm the opponents of the Bill, and to conduct it so rapidly into the pale of law. Nor are we altogether dissatisfied because the measure just passed is not by any means so pretentious as that which was originally introduced. Both time and knowledge were wanting for the satisfactory settlement of those portions of the original Bill which conferred extended sanitary powers and dealt with extremely complicated scientific details. Even if the chief interests of Parliament had not been centred in the "Ballot" and "Scotch Education," there would have been little hope of satisfactory legislation on subjects beyond the knowledge and experience of the majority of members. The poverty of the debates on Mr. STANSFELD'S Bill exposed the fact that ignorance on sanitary subjects is not confined to vestries and boards of guardians; and if the members of the House of Commons will only give a tithe of the attention to them which they have been in the habit of bestowing on questions of politics and religion, we shall expect no little advantage from delay. Meanwhile it is something to know that all serious opposition to legislation calculated to raise the standard of public health has disappeared. Both sides of the House have contributed to the success of the measure which has just been passed; and it is a significant fact, for which the Conservatives may justly claim the credit, that some of the most valuable clauses have been inserted in consequence of their votes.

What, then, are the steps which have been gained by Mr. STANSFELD'S Bill?

First, the sanitary authorities have been definitely constituted everywhere except in the metropolis. There was little or no difference of opinion with respect to towns where the corporation, local board, or improvement commissioners form the natural centres of local government; and it is remarkable how completely the opposition to boards of guardians, as the sanitary authority in rural districts, collapsed in face of an actual trial of strength. Only seven members were found to vote in favour of the proposition of county boards. We have always supported the Government view of this important question, not because we are particularly well satisfied with the zeal and intelligence of country guardians, but because we regard them as being the best existing authority, and one at least equal to the more interested landlords represented in the county boards.

The next, and to the medical profession the most interesting feature of the Bill, is the provision for the universal appointment of medical officers of health and inspectors of nuisances, whose salaries are to be paid in part from the Consolidated Fund. These compulsory appointments have always been regarded by Mr. STANSFELD as an important feature of his scheme. We warned him of the false position in which he would be placed if he did not take power of partial payment. It is not a pleasant thing to order a local authority to incur the expense of electing officers of whose value they have no experience; and Mr. STANSFELD must feel how much his labours have been lightened by an arrangement which was forced upon his colleague the Chancellor of the Exchequer less by himself than by the opposition members.

By this enactment the medical profession have been placed in a new and most responsible relation to the public. They will be the guardians of the public health, and the virtual administrators of sanitary law. They are provided with assistant-inspectors equally independent with themselves; and it will be their own fault if they fail to make their value felt in the five years for which every first appointment will be made. It will behove all newly appointed officers to study their duties thoroughly; to make themselves well acquainted with the existing sanitary laws; to proceed with judgment and moderation, in order to educate their various boards, and so secure their respect and confidence. They will have to remember that if, on the one hand, they pursue a quixotic course of extravagance they will not be re-elected by their local masters; and if, on the other hand, they pander to local ignorance and inaction, the Local Government Board will equally have the power of refusing their consent to re-election. These five years must be regarded as a period of trial and self-education, and it will be our duty to assist the new staff by every means we can.

But we have yet to notice a feature of the Bill which we regard as the foundation of all sanitary reform. The real difficulty experienced in all matters of social improvement is expense. The medical officer of health is powerless unless he can incur expense. He must have inspectors, disinfecting apparatus, hospitals, and scavengers; engineers and surveyors must be brought into requisition for water-supply, sewerage, and a variety of public works; chemists will have to be employed to test the quality of the air, water, food, and gas. In fact, the development of social health is just as much a question of expense as the development of social comfort, and ought to be regarded as an equally important step in social progress. Any arrangement, therefore, which distributes the weight of expenditure for sanitary improvements with equality and justice over a large number of persons, and, in the case of permanent works, over a sufficient length of time, is of the highest importance; and this is practically secured by the clause which enables local authorities to borrow money on the security of the Government at the lowest rate of interest, and to distribute the repayment over a term of fifty years. It was this excellent arrangement which contributed so completely to the success of the Lancashire Public Works Bill. Under that Act a sum of two millions was expended on roads, water-works, sewers, and other objects; and Lancashire was advanced a whole generation in sanitary

reform without any serious increase of the local taxation. The same principle was also adopted for the promotion of education, and under it school boards have already borrowed several millions for the erection of public schools. And now it is a matter of congratulation that the public credit is made answerable for sanitary expenditure, and that the care of the public health is made of equal importance with the advance of education.

AT the last Annual Meeting of the Governors of the City of London Lying-in Hospital, City-road, it was determined to extend the usefulness of the charity by instituting an "out-door maternity department," for the purpose of aiding poor married women at their own homes. A staff of medical men, midwives, and druggists was appointed to carry out this arrangement, which is to come into operation immediately. The area of the new duties is to include the City of London, the parishes of St. Luke, Clerkenwell, and of Shoreditch, as much of Islington as is bounded by Essex-road to the New North-road, Bethnal-green to Cambridge-road, and a portion of Whitechapel. The governors have also arranged that the medical officers shall be to some extent remunerated for their services.

The operations of the charity, upon this enlarged basis, may be either of great or of no value, according to the discrimination exercised in the selection and recommendation of patients. In the districts indicated, the midwifery fees paid by the working classes to the medical profession are individually small, but collectively numerous; and they constitute an important addition to the incomes of many hard-working practitioners. It would be in every sense an evil if the hospital were to teach reliance upon alms, at the time of childbirth, to those who have been accustomed to provide medical attendance for themselves. The same districts, however, contain vast numbers of women who now fall into the hands of utterly uninstructed midwives; and it will be a work of true mercy to rescue these women from the perils which such a state of things implies. The midwives employed by the hospital will, of course, be persons of good character, who have received such teaching as circumstances will at present allow, and who will continually learn from the supervision exercised over them by the medical officers under whom they will be called upon to work. They will thus introduce an element of safe female midwifery practice to the classes most interested, and can hardly fail to occasion an increased demand for their services. The great majority of women in the upper and middle ranks of life will probably always prefer male attendants during childbirth; but among the very poor this feeling is by no means so strong, and the pecuniary value of the time of the accoucheur places a formidable difficulty in the way of indulging it. The poor must have midwives; and it is of the first importance to the safety both of maternal and of fœtal life that they should be fitted for the trust reposed in them, and also that they should know where to obtain skilled assistance speedily in case of any emergency that may require it.

We trust that advantage will be taken of the new arrangement to obtain trustworthy and complete statistics of the puerperal state in both the in-door and out-door departments of the hospital. The best midwifery statistics existing in England are those laboriously put together by the late Dr. FRANCIS RAMSBOTHAM from the copious and accurate records of the eastern district of the Royal Maternity Charity; but in these there was no opportunity for comparing the figures furnished by out-door patients with those furnished by the in-door patients of a hospital supplied from the same ground. In ten years' time the two departments of the City of London Lying-in Hospital would probably afford materials for an instructive comparison, especially if the grounds for admission into the house were not accidental or capricious, and were in every case fairly stated in the returns.

We cannot but pause for a moment over the adjective "married," which describes the poor women who are to be eligible as patients. We do not think the qualification either wise or charitable. It is notorious that unmarried women incur increased risk in childbirth, and they are often as truly objects of compassion as their married sisters. If a line must be drawn, that laid down at Queen Charlotte's Hospital is the best, where single women are only admitted in a first pregnancy. But it would be far better to draw no line at all, to erase the word "married," and to leave each case to be dealt with on its merits by the recommending governor or by a committee of selection. It would be foolish and wrong to extend the benefits of the institution to those who are notoriously profligate, whether married or single; and it would be contrary to the teaching of the Founder of Christianity to withhold these benefits from those who are frail, merely because of their frailty.

Upon the whole, therefore, we think the governors of the hospital may be congratulated upon their decision with regard to the new arrangements; and we trust they will take care that the work of the new department shall be so restricted as to accomplish the greatest amount of good at the smallest possible sacrifice of the self-respect and independence of the recipients.

IN his Report to the City Commissioners of Sewers for the year 1871, Dr. LETHEBY makes the following remarks on the alleged turbidity of the London water-supply. They are worthy of consideration.

"The water supplied to the City by the New River and East London Companies has been invariably bright and nearly colourless; and so also has been that of the Kent and the West Middlesex Companies; but that of the Southwark and Vauxhall Company has been turbid on one occasion, that of the Lambeth Company on five occasions, and that of the Chelsea and of the Grand Junction Companies on eight occasions respectively. The turbidity has been at all times due to the presence of a very small quantity of finely-divided clay, in which there was occasionally a trace of vegetable tissue; and no doubt it had been caused by the heavy floods of the river. Although perfectly harmless, a slight turbidity of the water is sure to command attention, and may easily be made the subject of popular clamour."

These statements are so positive, in some respects so improbable, and in all so different from those published by the Registrar-General on the authority of Dr. FRANKLAND, that we are compelled to examine them somewhat critically. And we must confess that the more we examine them the

more unsatisfactory do they appear to us. On the mere question whether the waters are clear or turbid, for example, we often find the reports of householders in direct opposition to that of Dr. LETHEBY. A lady who lives at Wandsworth complained to us the other day that the water supplied to her was never quite clear, and was often "muddy." She is compelled to refilter every drop used in the house, and asserts that the members of her household know the difference in *taste* as well as in appearance between the filtered and unfiltered water. A tumbler of each was brought to us, and we saw the difference at a glance, although the weather was dry, and the water in consequence better than usual. How is this to be reconciled with Dr. LETHEBY's statement that, in 1871, the water of the Southwark and Vauxhall Company was turbid "on one occasion"?

Again, with regard to the quality of the turbidity. How can Dr. LETHEBY prove that of all the foul impurities which mix with the sources of our water-supply only "clay and vegetable tissue" are able to pass through the filters? We all know the difficulty of separating clay from water by filtration, but surely the very fact suggests the idea that other matters, more noxious and less easy of recognition, may be equally difficult to remove. And here, again, the idea is confirmed at once by common observation and by experiment. Our Wandsworth friend informed us that three times in the last few years the water-pipes of her house had been choked up with large eels; and stories of this kind are pretty rife. Does Dr. LETHEBY reckon an eel as clay or as vegetable tissue? The evidence of experiment is even stronger. Dr. FRANKLAND found that water contaminated with one-five-hundredth of the rice-water discharge of cholera remained opalescent after filtration through paper, or even animal charcoal, both much better filtering materials than the sand used by water companies. That sand should be capable of removing organised germs—spores, ova, or corpuscules—from water which contained them is indeed a notion so improbable as to be almost absurd. Dr. LETHEBY would seem to concede as much; for he quotes with approval the remark of Major BOLTON, that "it is impossible altogether to get rid of the simplest forms of vegetable life by the most perfect filtration."

The case, divested of all exaggeration, appears to stand thus:—It is highly probable that imminent risk attends upon the use of water which contains in suspension certain low forms of life, though it is conceded that other forms of life are harmless. It is a fact that noxious and probably organised matters are introduced into the sources of our water-supply; and it is furthermore a fact that one, at any rate, of the most noxious of these matters—the discharges of cholera—will pass through all filters. How then can Dr. LETHEBY, or anyone else, prove to us that no such noxious matter is ever present in the water supplied to our houses? As we understand it, Dr. LETHEBY's answer is twofold. Firstly, he tells us he knows by his experience that all dangerous matter must have been destroyed by oxidation in water which has been exposed to the conditions of the London water-supply. This argument we may set aside as a bare opinion. It is obvious that no amount of mere experience can decide the question. Dr. FRANKLAND and Sir BENJAMIN BRODIE have come to a different conclusion, and they are surely as well entitled to have an opinion as Dr. LETHEBY. Secondly, Dr. LETHEBY relies on his analysis of the water, which tells him that the quantity of organic matter in it is very small and not noxious. How far his analysis may be trusted for this all-important proof a single example will show. In the report which we have before quoted he says:—"The proportion of organic matter in the water has been very small, for the quantity of oxygen required to act on every description of oxidisable matter has ranged from only 0·01 of a grain per gallon in the chalk water of the Kent Company, to 0·102 of a grain in the Thames water supplied by the Grand Junction Company." Now Dr. FRANKLAND has found that water contaminated with one five-hundredth of rice-water discharge—that is, water which contains in every gallon 140 grains of the evacuations of a cholera patient—only requires, after filtration, 0·03 of a grain of oxygen per gallon for its oxidation. In other words, such a deadly mixture as this would exhibit under this test less than one-third of the pollution of the Grand Junction water!

OUR text on the vigilance needed to keep cholera from our shores is fitly taken from a circular letter which has emanated from the Medical Department of the Local Government Board, is signed by Mr. SIMON, and, as we are informed, has been sent to the sanitary authorities at nearly all the eastern ports of the kingdom. The contents of the circular (which will be found in another column) indicate that cholera exists extensively at St. Petersburg, has been for some time prevalent in the south of Russia, and is, in fact, epidemic at several ports with which we have daily commercial communication. The local authorities are reminded that the Orders of Council issued in July and August of last year are still in force, and they are urged to take stringent and immediate measures for the inspection of all vessels that arrive from infected places, and for the establishment of floating or other hospitals, so that isolation may be effectively and continuously practised. The floating hospitals on the Tyne and off Lowestoft are pointed out as worthy of imitation, and Mr. SIMON adds a reminder to the effect that these port hospitals ought and, indeed, must be considered a permanent part of the sanitary system of port authorities. Thus much for the circular. We cannot be called alarmists in discussing the prospect that it opens up; for, if we are to place faith (as undoubtedly we do) in the general principles of Mr. RADCLIFFE's able memorandum, commented upon in THE LANCET of June 29th, it is plain that preventive measures ought to be taken quickly and adopted thoroughly, after the plan sketched out by the Medical Department of the Local Government Board last year. It will be in the memory of most of our readers that the members of Mr. SIMON's staff visited all the out-ports in the month of August when cholera was threatening, and induced nearly all the authorities at those ports to prepare properly for the foe, by instituting hospitals and a direct supervision over the shipping. The port of London alone remained in an unprotected state, though a Thames Shipping Inspection Committee was formed, and still continues to exist, but, so far as we know, has inspected nothing except a plan of

operations submitted to them some ten months ago. We are bound, however, to record that their difficulties have been very great, as they have no rating powers, and the districts represented have various and diverging interests, overriding sanitary interests most completely. This by the way. The chief purport of these remarks is to urge action on the part of all port and "riparian" authorities, pending the completion and the passing of the Public Health Bill. Hull, Grimsby, the Tyne, and other eastern ports, have got their machinery, and have only to keep it in good working order; for hospitals as well as medical inspectors exist at these ports, as also at Lynn, Goole, Hartlepool, Ipswich, Harwich, Lowestoft, Scarborough, Yarmouth, and Whitby. Liverpool appears to be in a transition state, but has made very good provisional arrangements with Mr. REGINALD HARRISON, the Customs medical officer, as to the inspection of all suspected vessels. We take it, however, that the Mersey is a very difficult river upon which to exercise proper sanitary surveillance; but it must be remembered that surveillance is imperatively necessary, because there is a direct and constant trade with the southern ports of Russia. The exertions of Mr. RADCLIFFE last year extended also to the southern ports of England; and Southampton, Portsmouth, Dover, and Folkestone were protected, though only provisionally. The present unsatisfactory state of matters in the port of London ought now to be quickly remedied, for the Public Health Bill will become law in a few weeks; and, as the Thames Shipping Inspection Committee suggested on Monday last, it is proper that the City Corporation should at once take up the matter and commence work. For, as we have, at the tail of the session, succeeded in obtaining a Bill that ought to benefit the metropolis very considerably, it can hardly be necessary at this crisis to wait until the measure has received the Royal assent.

WE cannot say that we ever had any faith in the theory advanced by Mr. FURLEY that the hypodermic injection of vaccine lymph was sufficient to arrest manifest small-pox, and bring about the disappearance of the eruption and the cure of the patient. Our readers will remember that Mr. FURLEY maintained that while vaccination in the ordinary way was almost inoperative in adults in arresting the disease, as had been taught by all the authorities on the subject, yet that if done in the way of a copious hypodermic injection of lymph, the effect was to cut short the disease. Our reason for doubting this proposition was partly because it was too good to be true, but chiefly because it seemed so amply contradicted by the frequent instances in which vaccinia and variola have gone on *pari passu*. And we are bound to add that the cases adduced by Mr. FURLEY were quite inadequate to support his bold theory. With a fine simplicity he gave only three cases, and those very imperfectly reported, in his paper published in our columns, to illustrate the effect of his treatment in the three different periods of life—infancy, childhood, and manhood. An exacting critic might not unreasonably have refused to admit that two out of the three were certainly cases of small-pox at all. Nevertheless, though not having the sentiment of faith in regard to Mr. FURLEY'S doctrine, we had that of hope; and we very cheerfully inserted his paper with the feeling that the sooner this theory was tested and disposed of the better. Dr. GRIEVE, of the Hampstead Small-pox Hospital, intimated to us his intention of applying it in several cases. We made it our business to see the operation in four or five of these. And the results are now before our readers in the shape of carefully noted clinical histories. We very much regret that these are not such as to encourage a further trial of the treatment. There were in all seven cases. In not one did the course of the disease seem favourably modified. Two of the cases died. And in one of these there were all the symptoms of pyæmia, with swelling and fluctuation over the whole of the anterior surface of the right arm; and it is difficult to doubt that the fatal issue was connected with the operation. The other fatal case was of a hæmorrhagic character, and the site of operation was the seat of a patch of ecchymosis of the size of a florin. In another case there was very slight local result, but there were inflammatory swellings in two places. In another case the course of the disease was ordinary, and the local symptoms of the operation were slight. In another (Case 5) the patient was ill from the beginning, and though having no serious swelling or trouble at the seat of operation, had a succession of abscesses; one over the sacrum, which yielded eight ounces of pus. In Case 6 there was a natural progress of the disease, with a rather troublesome local irritation from the injection. In Case 7 there was a mild attack of small-pox, with a very extensive suppurative inflammation of the right arm, having its beginning at the seat of the injection. Perhaps Mr. FURLEY may object that the cases were too far advanced for his treatment. Three were in the vesicular stage, and one in the pustular. But unless he can bring forward very convincing counter-evidence, the profession will feel that the hypodermic injection of lymph in small-pox is both a useless and a risky procedure. The skin and subcutaneous tissues are notoriously by disease rendered prone to low inflammatory states, and the hypodermic injection seems to intensify this risk, and to confer no corresponding advantage.

Medical Annotations.

"Ne quid nimis."

SUNSTROKE.

THE deaths at New York from sunstroke have reached alarming proportions, and the mortality among the children from diseases incidental to childhood, but excited by the great heat, is represented as very lamentable. Our American cousins are not only a more excitable race than ourselves, but they live in a much more excitable climate, the effects of which are not diminished by the practice too common among them of having recourse to stimulants in small quantities, prepared in a variety of ways, and disguised under various names. If we remember aright, it was Sir Charles Napier who explained his exemption from sunstroke by declaring that the sun found no ally of alcohol in his brains. Attacks of sunstroke are not, however, by any means exclusively confined to intemperate persons. Still alcohol is one, and a powerful one, among the predisposing causes to heat-apoplexy.

According to all accounts, the heat has been unusually severe in India during the present season; and, as a consequence, the cases of heat-apoplexy have been common. Happily, we know very little of this disease in this country; but at the recent review of the troops at Aldershot by Her Majesty a soldier was conveyed to hospital with well-marked symptoms of sunstroke. And if the present extreme heat continues to prevail, we may expect many other occurrences of a similar kind.

Dr. Horatio C. Wood, jun., has recently published in America an excellent paper on the subject of sunstroke, founded upon some observations and experiments undertaken by him with the view of elucidating the phenomena. We are indebted to the *Philadelphia Medical Times* for our information concerning this paper. After showing that in cases of sunstroke the blood undergoes no primary changes in its physiological or chemical properties, Dr. Wood's next step was to ascertain why the heart and muscles are found so rigid after death from sunstroke, and what it is that really kills in this affection. By subjecting myosine to different temperatures, he found that this substance coagulated with great rapidity from 108° to 115° F., and the temperature of the body in cases of sunstroke often reaches 110° F. at the time of death. But the heart is found to continue to beat in animals dead of sunstroke—at any rate dead in the sense that they had ceased to respire. The rigidity of the cardiac muscles then is a post-, and not an ante-mortem, phenomenon. As some experiments by Dr. Wood proved that heat applied to a nerve trunk would not destroy its conducting power, his further investigation was directed to the action of heat on the nerve centres. By some ingenious appliances, hot water was made to circulate over the surface of an animal's head, and it was found that sudden insensibility, and ultimately death from asphyxia, could always be induced at certain temperatures. A brain temperature of from 112° to 114° was fatal to a cat, and one of 114° to 117° to a rabbit. Owing to the possession of a more highly organised brain, it is probable that in man a less degree of heat would produce the same set of symptoms. The mechanism of an attack of sunstroke then, according to Dr. Wood, is that "under the influence of external heat the temperature of the body rises until at last a point is reached at which the heat paralyses, by overstimulation, the controlling centre regulating animal heat; then a sudden additional rise of temperature, with a corresponding increase in the severity of the symptoms, occurs."

Of course cold is the remedy, and cold water the readiest way of applying it. It is a great mistake to suppose that these cases are commonly due to the action of the direct rays of the sun, for in India, as in America, attacks are very frequent at night. One of the main things to be attended to is, as we have said before, the function of the skin by the daily use of the bath. Much of the insanity in our army arises among soldiers serving in India who have been exposed to sunstroke, and the same appears to be the case among the residents of New York.

UNCERTIFIED CAUSES OF DEATH.

THE Royal Sanitary Commissioners, with reference to that branch of their inquiry which related to the registration of births and deaths, came to the conclusion that "every death should be registered, either on the certificate of a qualified medical practitioner or on the verdict of a coroner's inquest." They were of opinion that a death whose cause was not vouched for by a competent authority was "not only a fact lost to the statistics on which a part of the study of the public health is based, but a great opportunity for fraud and crime." And to obviate all this, they recommended that where there is no medical attendant, or where, from any reason, the medical attendant objects to certify the cause of death, the medical officer of health should be authorised to inquire into the circumstances relating to the death, and thereupon either to give a certificate of the cause, or, if there were anything suspicious in the case, to inform the coroner of it. Unless the Commissioners had determined to disregard the almost unanimous opinion of the witnesses most competent to advise them on this subject, they could not have come to a conclusion different from that above referred to. The Government, however, have not thought proper to follow the advice of the Commission. The Registration Acts Amendment Bill, now before the House of Commons, simply provides that, where no medical certificate of the cause of death is forthcoming, "the registrar, after ascertaining to his own satisfaction that there is a reasonable cause for the non-production of such certificate, shall, before registering the death, obtain from two of the persons required by this Act to give notice of such death, information to the best of their knowledge and belief of the cause of such death, and of the particulars required to be registered concerning the same; and such two persons shall, when required by the registrar, jointly give to the registrar such information, and sign the entry of death in the register book."

Clearly this procedure will not remedy the defects in the mortality statistics referred to by the Sanitary Commissioners; and it is very doubtful whether it will have much effect in putting an end to whatever crime or fraud prevails now, seeing that the informants under the clause would commonly be the very persons who might have an object in giving false information. It has been objected to the proposal that no death should be registered without its cause being properly certified, that such would inflict a great hardship upon people in the more remote and sparsely populated parts of the country, where it would in some cases lead to the undue retention of dead bodies, and in all would give the relatives of the deceased unnecessary trouble. If it had been shown that either of these drawbacks is inseparable from the plan of universal medical certification, and that the proportion of cases in which such drawbacks would be felt would be at all considerable, we should admit the objection to be valid. But there is no proof or attempted proof on either of these points, notwithstanding that the onus of proof lies with the objectors. It is not denied that the certification of the causes of death is essential to the proper working of a death-registration system, and it would have been only conformable to the principle always presumed as the basis of legislation in this country—namely, that the interests of the few must give way to those of the majority,—if the Registration Acts Amendment Bill had insisted upon the certification being made universal.

THE LONDON WATER COMPANIES AND THE BOARD OF TRADE.

WE have so often been under the disagreeable necessity of censuring the Board of Trade for its extreme unwillingness to exercise the powers conferred upon it by the Metropolis Water Acts for keeping the water companies up to the mark of their legal obligations in dealing with the public, that it is with a lively satisfaction we find that those powers are henceforth to be entrusted to other hands. Mr. Kay-Shuttleworth has succeeded in carrying, by a majority of 177, an amendment in the Public Health Bill whereby the Local Government Board is in future to be substituted for the Board of Trade in all such matters of supervision as are provided for in the Metropolis Water Acts of 1852 and 1871, as well as in the Alkali Act of 1863. Mr. Stansfeld

acted most wisely in accepting this amendment, which of itself would be sufficient to make his Bill acceptable as a substantial piece of sanitary legislation. And Mr. Kay-Shuttleworth will, we hope, be encouraged by his success thus far to make next session an effort to rescue London altogether from the power of the water companies. There is not a doubt that the metropolis could get a constant supply of water at a much cheaper rate than it has to pay for the present intermittent supply if the entire supply were vested, as it ought to be and eventually must be, in one metropolitan authority. The water companies cannot complain; they have had a fair field and plenty of favour, and with what result let them read in the report of the discussion in the House of Commons on Mr. Kay-Shuttleworth's amendment last week. The plea of those who on former occasions have successfully fought the battles of the companies was that they had had no notice of the amendment; but this plea was rejected, and when the decision was taken only 16 members, out of more than 200, followed the companies' representatives into the lobby. The scarcity in Bermondsey has done more than any amount of argument or reasoning could have done to precipitate the final settlement of the question of the London water-supply. And in the meanwhile we shall be much mistaken if the companies do not find the Local Government Board less easy to satisfy than they did the Board of Trade.

DR. PETTIGREW ON THE CIRCULATION.

THE eleventh lecture on "The Physiology of the Circulation in Plants, in the Lower Animals, and in Man," was devoted by Dr. Pettigrew to the great vessels and valves concerned in the circulation of animals. The lecturer described the structure and uses of the veins and arteries, and the relation which the valves bear to them and to the heart. He also described the structure and uses of the valves, and showed that in proportion as the circulatory apparatus of an animal becomes complicated, so the valves become more and more differentiated. The object of the valves in every instance is to cause the blood to travel in a circle, and always in the same direction. When the valves are diseased, particularly those of the heart, they become incompetent—i. e., they permit the blood to travel in a wrong direction, which is always a serious matter. The valves, the lecturer observed, may consist of only one segment, as in the smaller veins, or of thirty-six segments, as in the bulbus arteriosus of the American devil-fish (*Cephalopterus giorna*). The valves are formed on a common type. They are all more or less semilunar in shape. In the veins the valves consist of from one to four segments; in the arteries, where they join the heart, usually of three; in the heart (between the auricles and ventricles), of two or three segments, to which as many accessory segments may be added. The segments may or may not be provided with tendinous cords (chordæ tendineæ). When tendinous cords are present, they are to prevent eversion of the segments when pressure is applied to the blood for the purpose of sending it forward. The tendinous cords are only present when the valves are surrounded by, or in some way placed under, the influence of muscles which elongate and shorten or open and close. The tendinous cords first make their appearance in the bulbus arteriosus of the fish, which is a muscular structure which opens and closes like the heart itself. They acquire their fullest development in the mitral and tricuspid valves of the mammalian heart. Between the tendinous cords as they exist in the fish and as finally developed in the mammal there is an infinite variety; but in every instance—and this is the important point—the valves are geared by them to living and moving muscular tissue, which regulates the amount of movement occurring in the valves. Some valves regulate their own movements, and are for this purpose partly or wholly muscular—as, for example, the right auriculo-ventricular valve of the bird. The movements of the venous and arterial valves are essentially mechanical, the segments of the valves being placed obliquely in the vessel, so that they permit the blood to pass through, but prevent its return. The movements of the mitral and tricuspid valves, placed between the auricles and ventricles of the heart, are vito-mechanical. This is necessary, because they are placed between actively contracting and expanding structures (the auricles and ventricles), and because the apertures which they guard are widened when the heart opens, and narrowed when it closes. The lecturer gave a very beautiful and novel explanation of the manner in which the mitral and tricuspid valves act. He stated that the segments of these valves are geared by the tendinous cords referred to above to fleshy columns (musculi papillares) situated in the interior of the heart. These columns, when the heart expands to receive its blood, elongate, and permit the segments of the valves to float upon its surface, as the leaves of water-lilies on water. The moment the heart (ventricles) closes, the valves are shut, regurgitation being rendered impossible. As the closure becomes tighter and tighter, the fleshy columns shorten and drag the segments of the valves in a downward direction, until they form a dependent cone, which has the effect of diminishing the heart at its base, until literally no blood remains in the heart. The mitral and tricuspid valves, therefore, rise and fall (like the diaphragm in the chest) when the heart opens and closes. Another point of peculiar interest was the form of the fleshy columns and ventricular cavities. These, the lecturer observed, were twisted to form conical screws. As the fleshy spiral columns project into the spiral ventricular cavities, it follows that between the columns there are two spiral depressions. These spiral depressions run from the apex of the heart to the bases of the segments of the mitral and tricuspid valves. They are filled with blood when the heart opens; and when it closes, the blood which they contain, and which is arranged in two spiral fluid columns, is forced in an upward direction in such a manner as to cause the segments of the mitral and tricuspid valves to rotate slightly, and screw and wedge into each other. When the valves are screwed home, the aortic and pulmonic valves are unscrewed and the blood projected along the main vessels, very much as a bullet is projected from a Minie rifle. The heart literally wrings out its blood by a screwing movement, and in this movement the valves situated at the base of the heart participate. The heart is screwed home during the systole and unscrewed during the diastole. Dr. Pettigrew bases these statements on actual dissections. The screwing movements of the heart can be seen during life; and the lecturer performed an experiment with a fresh heart, to show the screwing and unscrewing movement of the valves. The lecture was illustrated with a number of original models and by a large number of diagrams.

SEWAGE UTILISATION.

GENERAL SCOTT and Dr. Anderson have recently delivered lectures on their respective proposals for dealing with sewage. The former we described last week, and, having inspected the works at Ealing, we are by no means satisfied with the result. General Scott pours into the sewers a mixture of lime and clay, in the proportion required for the production of cement. In passing through the sewers, the lime mixes intimately with the sewage and apparently reduces the evolution of sewer gas. But the tanks at Ealing are much too small to secure perfect deposit, and on the occasion of our inspection the effluent

water was not fit to turn into a river. An examination of the dried deposit makes it very doubtful if any important addition has been made to the materials put into the sewers. It seems to us that General Scott has been misled by the analysis which represents the loss on incineration after drying at 140° F. as organic matter, and the inference that it contributes materially to the combustion of the cement. We fear that in reality not less than half is basic water, and that he will find the sewer deposit contributes very little to the production of heat. We doubt, therefore, whether the General's ingenious process will succeed.

Dr. Anderson's lecture was extremely interesting, but, in spite of the encomium passed upon it by the President of the Institution of Civil Engineers, we doubt if it is calculated to remove the objections to this mode of dealing with sewage. Dr. Anderson adds crude alum and then lime to the sewage, and the effect is to cause a very rapid coagulation of suspended matters; but Dr. Anderson did not succeed in removing the odour of London sewage, and it is a lame excuse to make, that the sewage of the Fleet-sewer was of the very worst form, which we take leave to doubt, and that the persistent odour was due to the presence of urea, which it certainly is not. The fact is that there is no chemical or filtration process by which anyone has yet succeeded in arresting the manurial elements of sewage, and Dr. Anderson only states the truth when he says it is hopeless to expect to manufacture a manure from sewage which can compete with the artificial manures now so much in use. To our mind, the difficulties in the way of manufacture are very great, and the margin of possible profit extremely small.

THE PROJECTED COTTAGE HOSPITAL AT MANSFIELD.

WE have received during the past week a variety of communications on this subject, and are glad to find that we were mistaken in understanding the *Mansfield Advertiser* as advocating a "Free" Dispensary. In another article on the subject that journal contends that a real Provident Dispensary should be opened, and that in connexion with it there should be two rooms for the reception of accidents, or of such cases as were unfit to be removed to Nottingham. What still puzzles us is that this scheme is offered as something different from, and better than, the projected cottage hospital. We should say that the two rooms would form a cottage hospital, and that to place the offices of a provident dispensary under the same roof would not hinder them from doing so. We are told, moreover, that there is a cottage hospital a mile from Mansfield already; but we presume this must be for the accommodation of some populous hamlet or mining district, and that it cannot be available for Mansfield people. The worst argument against the projected cottage hospital is founded on the fact that there is the county hospital at Nottingham, which one letter-writer describes as "an establishment surrounded by endless conveniences, baths, &c., with highly gifted medical men as attendants." Now we see no reason to doubt that the medical men of Mansfield are just as highly gifted as those of Nottingham. But the Nottingham surgeons have for some years gained a part of their experience and reputation by receiving and treating Mansfield patients; and it would have been better for Mansfield people if their own surgeons could have kept these cases, and could have secured whatever of experience or reputation was to be obtained from them. Mansfield is a busy little town, and, qua hospital, it is quite strong enough to run alone. We advise the inhabitants to support their own hospital, to reap all the available benefit from it, and to leave the Nottingham people to support theirs. While Mansfield has no hospital, its middle-class inhabitants will be likely to have to send to Nottingham for a consultant in any surgical difficulty or emergency. When it has a hospital, the Mansfield surgeons may possibly be even better qualified than at present to deal with such cases; and at all events they will have an increased hold on the confidence of the public, who will be aware of the good work done in the new institution. We think a small hospital in a small town ought to be a source of unmixed good; and we do not care whether it has two rooms or three, or whether it is together with or apart from the local provident dispensary.

HOMICIDAL IMPULSE.

THE case of John Jordan, a soldier, aged thirty-nine, who was tried on the 18th inst., at Lewes, for the murder of a child by cutting its throat, and who was acquitted by the jury on the score of insanity, is of great interest on medical grounds, and is likely, we should think, to be often referred to in courts of justice when similar cases are *sub judice*. The facts of the case were briefly these. The prisoner and another soldier, both gunners in the Royal Artillery, were stationed at a lonely fort on the banks of the river Arun, at Climping, near Littlehampton. These two were under the immediate command of a bombardier named Semple, who, with his wife and children, also inhabited the fort.

On Sunday, May 5th, the prisoner appeared to be on excellent terms with the Semples, went to church with them, and took particular notice of the children (chatting to them, &c.), and especially of the deceased child John. The prisoner dined with his fellow-soldier on that day. After dinner he read a novel for about half an hour, then rose up, took a razor out of a box, went out, and in a few moments deliberately cut the throat of the child John Semple. One month before the murder the prisoner had been placed under arrest for two days by Semple, because he had been absent all night without leave; and this fact was brought forward by the prosecutors as motive to the crime. It was admitted that previous and subsequently to the crime, Jordan had appeared to everybody to be a sensible, rational man. He had served for twenty years, and had stripes for good conduct. After the act, the prisoner threw the razor on the ground, attempted to run away, appeared very much agitated, and, questioned as to the murder, did not deny it, but merely said, "The devil must have tempted me."

For the defence it was shown that the prisoner's wife had deserted him two years and a half previously—why was not stated,—and that in consequence he had been mentally depressed for a time, and shortly afterwards was in the hospital at Woolwich for two months, suffering from symptoms which were variously described. "Loss of spirits, sleeplessness, and loss of appetite," were mentioned, and some of the doctors at the time seem to have made a diagnosis, rightly or wrongly, of delirium tremens.

One of the prisoner's commanding officers, who had found the funds for his defence, and who had seen him when in hospital at Woolwich, had stated shortly afterwards that the prisoner ought not to be sent to an out-fort, since he was always melancholy when solitary, and would, under such circumstances, possibly go "melancholy mad." He was, however, as stated above, sent to an out-fort, and he did (as was urged for the defence, and as the jury decided) go melancholy mad; and out of his temporary attack of melancholia grew the fearful and sudden impulse which led to the commission of the crime.

The above case, in which, with the exception of the crime itself, there are very few evidences of unsoundness of mind, seems to show that modern views as to insanity are

gaining ground, especially as the summing up of the judge was decidedly in favour of the view of the case which was taken by the jury after a very short deliberation. There is one fact which did not appear in evidence, but which we are curious to ascertain—viz., what was the book which the prisoner was reading just before committing the murder. He seems to have suddenly stopped reading, and to have proceeded at once to the commission of the crime, and it is, we think, quite possible that some passage in the book may have suggested the murder, or may have recalled some old grievance the memory of which for a time overpowered his reason.

ANALOGY OF THE EFFECTS OF BITES OF SNAKES AND INGESTION OF POISONOUS FISH.

IN Brown-Séquard's *Archives de Physiologie* (No. 3) Dr. Corre, of Brest, institutes a comparison between the symptoms produced by the inoculation of the poison of venomous snakes and those resulting from the ingestion into the stomach of poisonous fishes. The fishes were the tetrodon and the melette of the South Pacific Ocean, the results of the use of which as food have been recorded by Drs. de Rochas and Lacroix. The snakes were the trigonocephalus described by Drs. Guyon, Rufz, and Encognère, and some others observed by himself in Martinique. The effects of the bites of snakes seem to be rendered apparent in the first instance by their action on the organs of digestion, indicated by intense thirst, pain at the epigastrium, nausea, vomiting, and usually constipation. The secretion of urine is arrested; cold sweats appear upon the skin. There is dyspnœa, accompanied sometimes with sero-sanguinolent expectoration. The action of the heart fails; the nervous system is strongly affected, the principal symptoms referable to it being agitation, stupor, coma, pain, cramps, convulsions, and paralysis. Post-mortem examination shows the gastro-intestinal mucous membrane injected with capillary ecchymosis, the lungs gorged with blood, the heart soft, and the blood decomposed. Now, symptoms almost identical with these have been observed where poisonous fishes have been consumed. It would, therefore, appear that the poisonous substances present a remarkable analogy in their nature and action. It is curious, however, to observe that they enter the system in two quite different methods. In the case of the snake poison, it must be introduced directly into the blood, and is without action when taken into the stomach; whilst the opposite obtains in the case of the poison of poisonous fishes.

MILITIA SURGEONS.

WE are glad to notice that a short statement respecting the proposed alteration in the emoluments of militia surgeons by the new Army Regulation Act has been recently put forward. Militia surgeons hold their commissions for life under various Acts of Parliament. Their pay is derived principally from a capitation allowance for attendance on the members of the permanent staff and their families, and from fees received for the medical examination of recruits. It is now proposed to deprive them of these, the chief portion of their emoluments, for under the new Army Regulation Act the services of militia surgeons will only be required during the period of training. Militia surgeons hold a recognised official position, and they are to a certain extent dependent on the pay attached to their office, and it seems to us that they should not be made the victims of War-office arrangements, no matter how far the public may be considered to benefit thereby. It is contrary to all precedent, as well as opposed to equity, to deprive the present incumbents of their appointments, for it really amounts to this. It is not likely that militia surgeons will leave their homes and give up their private practice, with any hospital or dispensary appointment that they may hold, to be present at the training or embodiment of their regiments at the new depôt centres, for the inadequate stipend they will receive as pay during training. The Government ought, in our opinion, to respect the rights of the existing medical officers, and fill up their places as they become vacant by death or incapacity for service; or, if Mr. Cardwell be determined on abolishing these appointments, the present holders of them should be regarded as entitled to compensation. This has been always recognised hitherto; the officers of the Court of Chancery whose offices were abolished in 1842, the holders of appointments in the Irish Church terminated by the Act of 1870, proctors, and Foreign-office clerks, have, one and all, been considered entitled to recompense for the loss of their posts. Then why not the militia doctors?

METROPOLITAN POOR-LAW OFFICERS.

A RETURN of the number of officers employed by the metropolitan guardians in 1867 and 1870 has just been presented. In the course of three years the number of officers employed rose from 1436 to 1713, and the salaries from £97,180 to £113,853. The extra fees (chiefly paid to medical officers) increased from £2307 to £2601. Exclusive of the pauper schools, there are at present 180 medical officers, who are paid £22,320 a year as salaries. The most liberal medical arrangements appear to be made in Holborn, the City, Marylebone, St. George's, Hanover-square, and St. Saviour's; whilst medical officers seem least numerous and worst paid in Westminster and Whitechapel. A few medical officers appear to be largely paid by extra fees, and in one or two cases the extras are greater than the salaries. We have had frequent occasion to point out the injustice of these inequalities. They are unjust to the medical officers, because a few are excessively, and the majority underpaid. They are unjust to the public, as half the salaries are paid from the Common Poor Fund. The Local Government Board is guardian of this fund, and ought to take steps to see that it is fairly spent.

MEDICAL PRACTICE AMONG THE CHINESE.

THE annual report of the Peking Hospital for 1871, in connexion with the London Missionary Society, affords some interesting details, by Dr. Dudgeon, of the practices and superstitions of the Celestials, who certainly appear to be a "peculiar people." The youngest son of a mandarin was cured of a bad burn at the hospital, and while the lad was undergoing treatment, diphtheria, which prevailed in the spring in that part of China, attacked a member of the mandarin's family. Prompt measures saved the patient in this case also. The father made a donation to the funds of the hospital. This was the first Chinese donation in money that had been received, the usual plan being to commemorate a recovery by erecting a tablet, but there was, fortunately, no more space in the hospital for tablets. Had our Chancellor of the Exchequer held a similar position in China he would have been saved some loss of reputation in regard to his proposed tax on lucifer matches, for these are believed by the Chinese to be the cause of diphtheria, and in all families where this disease is dreaded these foreign articles are strictly excluded. The Chinese physicians use acupuncture for the treatment of every disease, and Dr. Dudgeon mentions the case of a man with chronic thickening of the pyloric end of the stomach and small lobe of the liver, the result of acupuncture. This mode of

treatment is, however, now wisely forbidden on the person of the emperor. The Chinese doctrine of the pulse frequently gives occasion to the perpetration of jokes upon the Faculty. Most ridiculous mistakes are often made between the sexes, and married and unmarried females. An ordinary joke is for a literary person, with delicate hands and long nails, to simulate a woman. The doctor is called in, the would-be patient thrusts his hand from behind a curtain or screen, as the manner is when women are attended professionally, and his pulse is most attentively examined at both wrists. All the circumstances of the family are duly considered, and the doctor, knowing how highly sons are esteemed, declares his patient pregnant with a boy.

WORKHOUSE SUPPLIES IN LONDON.

AT length the returns as to the supply of provisions and extras in workhouses, to which we have so often incidentally alluded, have been presented to the House of Commons. The guardians are told part of the truth. They are informed that the food-supplies are often of the most disgraceful kind; that the wine, brandy, and other extras given to the sick are totally unfit for human consumption: and there is irrefragable proof that quality is often made to give way to price. But, bad as are the revelations made in this report, we much doubt if Mr. Stansfeld has obtained the whole truth. What is the relation between the contractors and the guardians, and between the contractors and the masters of workhouses? Mr. Rowsell had perhaps enough to do with the samples and the prices, but if he had extended his inquiries he might have discovered that certain tradesmen give dinners to their friends just before the determination of the contracts, and if he could not have traced the relation of cause and effect, he might have observed that the contracts follow the repasts. Nor is it wonderful to find that the underpaid masters of workhouses, who have the responsibility of rejecting or admitting food worth millions in a year, should occasionally yield to the temptation of admitting bad butter for good, lean meat for fat, skimmed milk for new milk, and diluted spirits for brandy of the best. We should also like to have heard a more particular account of the curious transformations which take place in some articles as they pass through the workhouse door. How much pauper gin, for example, is converted into sherry not to be consumed by paupers; how much logwood is converted into genuine old port which the sick will never taste; how many lean joints are by some magic hand converted into chickens and ducks, which fly away in a mysterious direction, but never towards the wards. The guardians have had a taste of real inspection; let them be warned in time, for assuredly the ratepayers of the metropolis will look to Mr. Stansfeld to secure in future better necessaries for the sick poor and greater wisdom in the expenditure of rates.

MR. JOHN HAMILTON'S TITLES.

WE refer to this very unimportant matter again in order to correct an impression which might be made by the statement of the defendant's attorney that THE LANCET was totally opposed to Mr. Knox's recent judgment against Hamilton for using the title "Dr.," on the strength of a diploma alleged to have been received from the Metropolitan College of Surgeons of New York. It was given in evidence in the trial before Mr. Knox that this body did not now exist, that it only had lived twelve months, that the standards were low when it did exist, and that the diplomas had been freely offered for sale. It was not likely that we should disapprove of a judgment which refused to recognise the power of such a body to grant the title of "Dr." Our words were: "In this view of the case"—that is, comparing it with the American University of Philadelphia, whose diplomas have recently been refused recognition by the Court of Queen's Bench—"the decision of Mr. Knox would give unqualified satisfaction to the profession, and ought to give satisfaction to the public, who are deceived on a large scale by the holders of such wares." It is too bad, after this, to be quoted in the Court as disagreeing with Mr. Knox's judgment of the value of the so-called diploma. We must again further enter our solemn protest against the language of Mr. Mansfield as to the title of "Dr." being within the right of everyone who likes to use it. It is marvellous to hear a respectable lawyer speak so. The title of M.D. which Mr. Hamilton was summoned for using can only attach to a degree in medicine from a university, and the use of it illegally is specially provided against by the Medical Act. If Mr. Mansfield's judgment be persisted in or confirmed by a superior court, we shall have the country overrun with "doctors" of a kind that would be very dangerous to the public. We are not clear about the illegality of a man calling himself explicitly Member of the Metropolitan College of New York, or about the soundness of Mr. Knox's opinion that it is a breach of the Medical Act for unregistered medical men, even if possessed of registerable qualifications, to use the titles attaching to them; but as to the illegality of John Hamilton using the titles "M.D., Surgeon" in England, on the strength of a diploma from a defunct American body, there should be no uncertain sound from any magistrate or court.

INDIA.

CHOLERA has prevailed in a number of places in India during the present year, although it has not assumed epidemic proportions. There have been upwards of fifty cases of that disease among the European troops serving in the Bengal Presidency. A regiment at Cawnpore has lost several cases, and cholera had appeared at Mhow and Sealkote. But the chief source of illness appears to have been "dengue fever," which has spread far and wide. Happily, it does not kill people, but it is a very painful affection. The season in India is generally regarded as an unhealthy one, as far as fever and "dengue" are concerned. The heat must have been something intolerable, for at Secunderabad the thermometer is said to have reached 107° in the shade, and for fifteen days not to have fallen below 103°. It is needless to add that all who are fortunate enough to have the power of doing so have taken refuge in the hills.

THE MUSCLES OF THE KIDNEY.

PROF. EBERTH, in a recent communication to the *Centralblatt*, observes that Remak is the only author who has described the presence of smooth muscular fibre cells in the renal capsule of the ox, sheep, and the amphisbæna. He himself some time ago showed that such fibre cells were not very widely distributed, since they are absent in man, the cat, pigeon, and tortoise. Recent writers, as Arnold in Stricker's "Manual of Histology," make no mention of the presence of smooth muscular fibre cells, either in the capsule or in the stroma of the kidney. Henle and Ludwig both regard the stroma and capsule as essentially composed of fibrillar, connective and elastic tissue; the former referring such muscular fibre cells as come into view on breaking up the tissues to the vessels. Eberth states that he can demonstrate the presence of a wide-meshed plexus of smooth muscular fibres, the diameter of the fasciculi of which is about equal to that of the larger superficial veins. These fasciculi are in no way connected with the musculature of the vessels, though they often run in close con-

tiguity to the vessels. Small processes of these muscular bundles may be traced into the cortex of the kidney, but they always remain quite superficial. Eberth has been unable to discover any fasciculi in the stroma of the kidneys. The fasciculi are most easily demonstrated in kidneys that have been hardened in alcohol, and from which superficial sections have then been made. The individual cells are fusiform, of various length, with dull homogeneous contents, and readily isolable with acetic acid and solution of potash. This muscular plexus is absent in ox, sheep, and pig. Its existence affords a ready explanation of many myo-sarcomata of the kidneys.

MEDICAL RELIEF IN THE TAVISTOCK UNION.

THE proceedings of the guardians of this union have frequently been commented on by us; their recent action, however, in regard to their district medical relief arrangements is so much at variance with what ought to prevail that we feel we owe our readers no apology in referring to it.

It would appear that in the early part of the last quarter the medical officer of the Lewtrenchard district, the population of which is 1880, on an area of 12,170 acres, resigned his appointment; the vacant office was duly advertised, when it happened that no candidate appeared—a circumstance not very surprising, when we state that the salary, *sans* extras, was only £25, out of which *medicines* had to be supplied. Disappointed in getting an applicant, the guardians perforce were compelled to treat their sick paupers as so many private patients, the bill for whom, just sent in, amounted for eleven weeks to £30 8s. In their dire extremity they applied to the Local Government Board for assistance, when it was suggested, whether by the Board above or the one below does not appear, that the district should be added to that of a neighbouring medical officer, who holds an appointment not only in the Tavistock, but also in the Launceston Union, the aggregate area of which will be vastly in excess of the limit laid down years ago in the general orders of the Poor-law Board, and that, too, in spite of the fact that the former incumbent, who lives in the centre of the district, offered to resume duty if his stipend were advanced £8 only.

Now, we do not suppose that either Mr. Stansfeld or Mr. Hibbert, engaged as they must have been in preparing the Public Health Bill, is in the least responsible for this transaction. If their attention has been drawn to it in any way, so as to secure their official sanction, it has doubtless been on the misrepresentations of one of the subordinates at Whitehall, who has availed himself of the opportunity afforded by the varied engagements of his chiefs to exhibit his ignorance of the value of efficient medical relief to the sick poor, and his contempt for the service that attends them.

It would be an advantage to the public if some independent member would put a question to Mr. Stansfeld, and move for the correspondence which has taken place.

CAUTION TO NURSEMAIDS.

CONCUSSION of the spine is a subject which just now occupies a full share of the attention of the medical world, and one form of it, under the name of "railway spine," frequently forms the subject of discussion in this and other journals. We feel sure, though it is a matter scarcely susceptible of rigid proof, that "perambulator spine" must be at least as common as its fellow of the railways. How many times have we watched Tilly Slowboy, while wheeling a perambulator containing a limp baby of a very tender age, proceed to cross the road in the most injudicious manner. Theoretically, of course, the front wheel ought first to be lowered carefully off the kerb-stone on to the roadway, which is often a full foot beneath it, and then, the front wheel being lowered, the hind wheels ought to be carefully lifted after it, and the transference of the baby thus effected entirely without any jerk, and without any concussion of the spinal column. The ordinary samples of the genus nursemaid perform this operation in a manner totally at variance with the advice tendered above. The front wheel is lifted off the ground, and the perambulator being tilted backwards is deliberately shoved over the little precipice before it, and alights below with a tremendous concussion, not only trying the springs of the little carriage, but giving the baby a jerk which keeps its head bobbing up and down for some seconds. We have frequently seen babies burst out crying after the concussion, which must be most injurious to them, and must be frequently the cause, repeated as it is many times daily, of inducing caries of the spine, or at all events of fostering the tendency to that crippling and often fatal disease in those who are constitutionally predisposed towards it. We shall be curious to hear the experience of surgeons on this point, and we advise our readers to caution mothers as to the evils which may thus arise from the carelessness of those to whom their offspring are entrusted.

CONSTANT WATER-SUPPLY FOR THE METROPOLIS.

THE Commission on the "fittings" required for the constant supply of water in the metropolis have had several sittings, and heard evidence produced by the companies and the Metropolitan Board of Works. We are glad to know that the interests of the public have been well looked after by the Board. The demands of the companies were most unreasonable and exorbitant, and one witness proved that if the kind of lead piping proposed by the companies had been considered necessary, the expenditure would reach the large sum of nine millions sterling, or probably sufficient to furnish the metropolis with an entirely fresh supply. The Commission have paid a visit to the East-end of London, where alone the East London Water Company give a really constant service. We may hope, therefore, that the proposals of the companies, which amounted to a virtual postponement of constant service to an indefinite future, will be modified so as to bring the constant supply within the reach of every district. It can scarcely be denied that the result of the inquiry has been to demonstrate the folly of leaving the supply of this first necessary of life in the hands of interested parties, and if the Corporation of the City of London desire to add another claim to the public gratitude they will take immediate steps to purchase all the existing companies, and take the water-supply of the whole metropolis into their own hands.

THE HEALTH OF EDINBURGH.

A STATEMENT has been made in the House of Lords by Lord Kinnaird that the sanitary condition of Edinburgh is so alarming that the Life Assurance Companies were considering the expediency of raising their rates in that city. Life Assurance premiums are, however, usually calculated upon a basis which leaves a pretty good margin for exceptional mortality, and we are not surprised to find that so much of Lord Kinnaird's statement as referred to the insurance rates has been denied. But that the mortality during the greater part of the present year has been excessive cannot be questioned for a moment. In the years 1867 and 1868 the death-rate averaged 25 per 1000; in 1869 it was 27·6; in 1870 it was 24; and in 1871 it was 26·9. During the first five months of this year the rate averaged 34, and the Scotch Registrar-General's monthly returns

show that this high rate was due to the great prevalence of diseases of the zymotic class, notably of small-pox and scarlatina. In the month of June the mortality fell to 24 per 1000, with the same two diseases continuing more than ordinarily fatal. In the last three weeks there has been a further decline, and the rate has been lower than in London. Fluctuations of this kind would seem to show that, while Mr. W. T. Thompson may be right in attributing much of the unhealthiness of Edinburgh to intramural burials, there must be other causes which the authorities should strenuously endeavour to discover.

VENTILATION OF CHURCHES.

WE remarked about this time last year on the want of care exhibited in the ventilation of places designed for public worship, in the metropolis and the provinces alike, and have to recur to the subject, because, according to our belief, it influences the health of both children and adults in a very marked degree. But we would emphasize more especially the unsatisfactory condition of the former class, inasmuch as they are, as it were, forced into the observance of religious forms and ceremonies, irrespective of inclination, and without regard to consequences. It is notorious that the windows of churches, chapels, and schools are, as to number and situation, few and far between; that, when the buildings are occupied, moisture bedews the interior surface of the glass; and that doors are opened to neutralise the evil, which is of course an absurd and dangerous proceeding, as the area of the inlets exceeds that of the outlets to a very considerable extent. The multitude perspire, but eventually catch cold, and find food for the doctors for many months to come. We are told on good authority that many ecclesiastics object to ventilation, because, according to their own theory, "it destroys the voice." We do not at all subscribe to the doctrine, but under any circumstances protest against the principle that at present appears to prevail, of making religion a vehicle for the exhibition of hygienic arrangements that must, to say the least of it, influence most unfavourably the rising generation.

THE LAMBETH POTTERIES.

A SPECIAL report has been made by Dr. M'Cormack, the Lambeth medical officer of health, upon the alleged injury caused to the neighbourhood by the smoke and vapours from the potteries there. The vapour emitted is said to be hydrochloric acid, which Dr. M'Cormack does not think prejudicial or injurious to health when diffused, as in this case. He admits that it is fatal to vegetable life, and destructive to the stone of which the Archbishop's palace is built, but he is of opinion that a lengthened and careful investigation should be made before any action is taken on this latter ground. As regards the general question, he states that the heads of the pottery firms have expressed their readiness to adopt any practical suggestions that may be offered for getting rid of the vapours complained of; and as he is not prepared to advise the vestry to embark on a crusade against every trade or manufacture which is obnoxious to somebody or other, his opinion is that the potteries do not constitute a nuisance sufficiently prejudicial to health to warrant the interference of the vestry. The discussion which ensued on the reading of this report showed pretty clearly that a strong feeling prevailed to have the matter further inquired into, and this is very much our own view. Either the vapours are hurtful or they are not; if they are, that is surely susceptible of proof, and in such case the potters must find a way of carrying on their business inoffensively or they must go elsewhere.

DR. LIVINGSTONE.

MR. STANLEY, the New York journalist, to whose intrepidity and perseverance we owe the discovery of Dr. Livingstone, arrived at Marseilles early on Wednesday morning, and immediately visited a correspondent of the *Daily Telegraph*, the latter, in the course of the day, forwarding a long letter to his journal by submarine telegraph. Mr. Stanley is the custodian of numerous despatches and letters to relatives and friends, while the account he gave of the brave old man's difficulties and hairbreadth 'scapes was most touching.

Mr. Stanley sojourned four months with Dr. Livingstone, and doubtless the great traveller must have been mightily entertained and surprised by the former's description of the momentous events which had taken place in Europe at the time when he was toiling manfully in his good work, although at times sick even nigh unto death.

Dr. Livingstone has now sufficient provisions to last him three years, but we again give expression to a hope that he may soon return, and leave the work to younger men. With regard to the alleged remissness of Dr. Kirk in forwarding supplies from Zanzibar, we would beg our readers to suspend their judgment until they are in possession of the whole facts and features of the supposed dereliction. Meanwhile we give Mr. Stanley a hearty welcome to London, and, Desdemona-like, claim for him a meed of sympathy and admiration for the dangers he has gone through.

THE MEDICAL CHARITABLE SOCIETY OF THE WEST RIDING.

WE learn from the *Harrogate Advertiser* that the annual dinner of the above excellent society was held at Harrogate last week, and that a large number of the leading physicians and surgeons of the West Riding were assembled on the occasion. The dinner was held at the Queen Hotel, under the presidency of Dr. Myrtle; and at the business meeting £500 was divided between seventeen applicants.

The *Advertiser* good-humouredly rallies the profession upon the excellence and abundance of the meats and drinks that were consumed on the occasion, and upon the total disregard by doctors of their own dietetic rules. We might be content to reply—"They that are whole need not a physician." But we may go further, and make public a curious fact. A good many medical dinners are held in London during the year, under the management of experienced caterers. These dinners show that medical men take less wine on such occasions than any other dining class—*e.g.*, less than barristers, or clergymen, or officers, or merchants. A caterer accustomed to medical dinners takes this into account in estimating his total charge per head; and in dealing with a caterer who has not this special experience, the managers of a medical dinner find their account in paying per head for the solids only, and for the quantity of wine that is actually drunk. Doctors are often merry, but they know how to be merry and wise.

DEATH FROM THE STING OF A BEE.

ON the 19th inst., Miss Elizabeth Hough, of Twickenham, aged fifty-five, was stung by a bee behind the ear. Shortly afterwards she became unconscious, and died before the doctor who was sent for arrived. The brother of the deceased stated at the inquest that she was of a delicate and nervous constitution. In the autumn of 1870 she was stung by a bee, and the consequences were very peculiar. She became unconscious, and remained in that state for two hours. It is well known that many people endure far greater sufferings than others when stung by bees or other

insects, and cases in which serious consequences have ensued are recorded. Beck, in his work on Medical Jurisprudence, quotes a case where a sting on the back of the finger was quickly followed by "vomiting, sweating, trembling, and great difficulty of breathing."

Dr. Tanner quotes a case from the *American Journal of Medical Sciences*, of a man who suffered very seriously in the month of August, 1819, from the single sting of a bee, and who being stung a second time (on the temple) in the following year, died from the effects thereof within ten minutes. Two or three other cases of fatal result are quoted by the same author, but happily such an occurrence is exceedingly rare. The advice given by the coroner, Dr. Diplock, to "give stimulants freely" in such cases, is undoubtedly founded on sound principles, the immediate cause of death being apparently failure of the heart's action.

TESTS FOR QUININE AND MORPHIA IN THE SAME FLUID.

A RECENT number of the *Pharmaceutical Journal* contains a translation of an important paper by Professor Flückiger on the Tests for Quinine and Morphia when contained in the same fluid. The most characteristic test for quinine is the formation of the green compound called thalleioquine, which is produced if solutions of the alkaloid or of its salts are mixed with chlorine water and then a drop of ammonia is added. Morphia treated in the same way shows a red hue, very quickly turning dark brown. The green colour with quinine appears when there is not more than $\frac{1}{1000}$ of the alkaloid in solution. The brown colour with morphia requires that at least $\frac{1}{1000}$ of that alkaloid should be contained in the fluid. But Prof. Flückiger points out that the test for quinine fails if there be more than $\frac{1}{1000}$ of morphia present, even if the quinine be in considerable quantity; the green colour of the latter being concealed by the dark dingy-brown colour of the morphia test. Prof. Flückiger recommends, in the first place, that the one test with chlorine and ammonia should not be alone relied upon, but that the nitric or iodic acid tests for morphia should always be tried; and, in the second place, his experiments have shown that in very dilute solutions of quinine, bromine vapour brings out the green tint much better than chlorine.

THE "BUZZER" NUISANCE AGAIN.

WE had thought that it was only in the industrial wilds of Yorkshire that manufacturers so ventured to put the neighbourhood at defiance as to keep up a fugue of buzzers, torturing to the tympanum, fatal to the sleep, and disastrous to the health, of all within earshot. But here, in London, the "head-quarters of civilisation," the foul-tongued nuisance has forced itself, and, of all places in the world, among the academic shades of Gower-street! Still more strange, the introducer of this discord is a local pianoforte maker, who has imported from Yorkshire a genuine "devil-screamer" for the purpose of rousing or recalling his men to their work. A gentleman waited on Mr. Vaughan the other day at Bow-street representing a numerously signed remonstrance against this engine of cruelty, which, it seems, commences operation at six in the morning, and keeps the "vexed vicinage" in torture at intervals during the day. The complainant assured his worship that the noise was such that people in infirm health were subjected by it to intolerable suffering, and that he himself had been forced to send away an invalid daughter to a quieter quarter of the town. Mr. Vaughan's reply was to the effect that he had no power to interfere, and that the aggrieved parties must either prefer an indictment against the pianoforte maker or apply for an injunction in the Court of Chancery. Happily a special clause has been introduced into the Public Health Bill which will supersede the irksome necessity of adopting the magistrate's suggestion, by making it as illegal to keep up a foul noise as it has hitherto been to keep up a foul smell.

OBSTETRIC DIFFICULTIES IN VICTORIA.

SOME months ago a Mr. W. H. Jackson, having a Dublin qualification, and practising in Victoria, was tried and found guilty of manslaughter in having caused the death of a child during parturition. The burden of the charge against him was that, instead of using the ordinary craniotomy instruments, he had used an auger, a gimlet, a chisel, and a hook made of fencing wire—rough instruments certainly, but showing a considerable amount of inventive ingenuity in the operator. At a recent meeting of the Medical Society of Victoria the case was brought before a committee specially appointed for the purpose of reporting upon it, when it was unanimously agreed that, taking into consideration the peculiar circumstances of the case (which we presume to mean that orthodox instruments were not available), and that no injury occurred to the woman, no imputation of professional incompetency rested upon Mr. Jackson; and it was further resolved that a deputation should wait upon the Solicitor-General in order to explain the case to him. We trust that the legal functionary mentioned will see the matter in a new light.

THE LADY MEDICAL STUDENTS.

THE case of the ladies who wish to graduate in medicine at the University of Edinburgh has been argued before Lord Gifford for two days, in the Court of Session of that city. We learn from the report in the *Scotsman* that the counsel for the pursuers cited the cases of many learned ladies who at various times had graduated in various places; and that the counsel for the defenders (the Senatus of the University) contended that his clients had no power to do that which was asked of them. Finally we are told that his lordship made *avisandum* of the case. We would not be so presumptuous as to declare positively what this means, but we presume it is that, like Captain Cuttle, he took a note of the matter, and will give his decision on some future day.

A DAY IN THE COUNTRY.

THOSE who have to prescribe for London children of the poorer classes have a very peculiar pleasure in noticing the extent to which the public are subscribing to enable the children of various schools to go for one day at least into the country. The pleasure of such a holiday is very great, and the physical advantage of it is almost equally so. We heartily commend this object to the consideration of those who have money to spare, and the prospect of a fortnight or a month in the country for themselves. Their pleasure will be greatly enhanced if they can send half-a-dozen children for a day into the country, out of the close air of London homes and London streets.

THE cattle-plague has broken out in the Deptford yards, and the reply of Mr. Forster to a question put by Sir Selwin-Ibbetson in the House, some few days ago, is by no means reassuring. For that reply appeared to indicate that sufficient care was not taken in the process of ship disinfection, or that the Government has not sufficient power to put the process into practice. It is most important that a thoroughly capable and efficient representative from Great Britain should attend the International Veterinary Con-

gress, in order that we may have the benefit of experiences gleaned on a subject so intimately connected with the food-supply of the kingdom.

A THIRD Free Medical Scholarship of Epsom College was awarded on Founder's Day, July 18th, to Ernest Sutton Smith, a Foundationer, who obtained a First Class at the recent matriculation, University of London. A "Carr Exhibition" of £50, tenable for four years, accompanies this; the endowment fund being raised by Dr. Carr, of Blackheath. Mr. Smith will proceed to University College in October next.

THE Greenwich Hospital Estimates, just issued, indicate a large comparative increase in the amount to be expended for the Naval School. But we are glad to know that Mr. Goschen has taken the claims of our merchant seamen into favourable consideration, and that some part of the hospital funds will be utilised in the purchase of annuities for their benefit.

MEDICAL SCIENCE among the native Hindoos receives constant encouragement from head-quarters, one of the latest acts of the Viceroy being the bestowal of the title of Rai Bahadur on Babu Kanaí Lal Dé, lecturer on Chemistry and Medical Jurisprudence in the Medical College at Calcutta, in consideration of the Babu's valuable services to the physician's art in India.

THE extensive works for the drainage and utilisation of the sewage of Windsor Castle and Frogmore House are now in progress, and are expected to be completed before the return of Her Majesty in the winter. The site selected for the reception of the sewage is upon the Ham, at Old Windsor, and a field of several acres near the old course of the Thames.

DR. ANDREW WOOD has finished the translation of the Epistles and of the Art of Poetry of Horace. He finds sufficient reward and great recreation in the work of translating, but we believe that he will soon send his work to the press, and submit it to the criticism of the public, as he did with his translation of the Satires two years ago.

A MASTER has been fined at Chesterfield for sending his servant home partly by railway and partly on foot, while ill with small-pox. The fine and costs amounted to £2 16s. This should serve as a warning to people against being too selfish in disposing of their servants with infectious disease.

THE twenty-sixth report of the Lunacy Commissioners just issued shows that on the 1st January last the number of lunatics, idiots, and persons of unsound mind in England and Wales amounted to 58,640.

LORD PORTSMOUTH has expressed his intention of bestowing his valuable manuscripts of Sir Isaac Newton upon the University of Cambridge.

THE first meeting of the London Committee of the Harvey Tercentenary Memorial will be held on Monday next, at 5 P.M., at the Royal College of Physicians.

CASES of cholera are appearing in Calcutta, and the town is still suffering severely from dengue.

OFFICIAL returns of cholera at St. Petersburg up to the 19th July are as follows:—Cases, 819; deaths, 339.

THE foot-and-mouth disease is spreading in Berkshire, and in some parts of the county is virulent.

THE meeting of the Medico-Psychological Association at Edinburgh promises to be of unusual interest. Papers will be read by Dr. Lockhart Robertson, Dr. Rogers, and Dr. Boyd. Sir James Coxe, the president elect, will entertain the Association at dinner on the 30th inst.

LAST week the mortality in London and twenty other large towns in the kingdom was at the rate of 23 deaths annually to every 1000 of the population. In the metropolis 258 deaths were due to diarrhœa and 29 to small-pox.

MRS. LOUISA ATKINS, M.D. of Zurich, has been appointed resident medical officer and secretary to the Birmingham and Midland Hospital for Women.

DR. E. J. TILT has been made a Corresponding Fellow of the New York Academy of Medicine.

ROYAL COLLEGE OF PHYSICIANS.

A MEETING of the College was held on Thursday. After some preliminary business, the College proceeded to the election of Fellows. As the result of the voting the President declared the following gentlemen elected—viz., Dr. Brewer, M.P.; Dr. E. Ballard; Dr. Heslop (Birmingham); Dr. Begley (Hanwell); Sir John Rose Cormack (Paris); Dr. Tetley (Torquay); Dr. Madden (Torquay); Dr. E. C. Seaton; Dr. Mackay (Admiralty); Dr. Fayrer (Calcutta); Dr. Cayley; Dr. Murray (Newcastle); Dr. J. A. Lush, M.P. (Salisbury); Dr. Liveing; and Dr. W. H. Robertson (Buxton).

Dr. Risdon Bennett was then re-elected to represent the College in the General Medical Council.

The following gentlemen were elected representatives on the Committee of Reference for an Examining Board for England—viz., Dr. Pitman, Dr. Risdon Bennett, Dr. West, and Dr. Barclay.

The officers of the College were next chosen, the choice of the Fellows falling upon Sir William Gull, Bart., and Drs. Sibson, Munk, and Fincham, as the Censors.

Dr. Quain introduced his motion to which we have made full reference before. He submitted that the recommendations of the Conjoint Committee should be taken into consideration by the College.

Dr. Pavy seconded the motion, which was supported by Dr. Lionel Beale and Dr. Anstie.

Dr. Risdon Bennett explained that the recommendations were only suggestions to guide the Committee of Reference, and they must, before they become actual "regulations," be submitted to the College. He objected to several things in the recommendations.

Dr. Pitman moved an amendment to the effect that no further steps be taken by the College until the Committee of Reference have agreed to submit regulations to the various examining bodies.

This amendment was carried.

CHARING-CROSS HOSPITAL.

ON Friday, the 19th instant, the annual distribution of medals and prizes to the students of this School of Medicine took place in the board-room of the hospital. The chair was occupied by Robert Few, Esq., one of the oldest and most liberal supporters of the institution. There was a full attendance of the medical staff, as well as of students and their friends.

The proceedings were commenced by Dr. Pollock, the Dean of the School, who, in his address, referred to the past year as one of the most important in the history of the hospital and school. During that period they had seen the new staircase completed, the hall much enlarged, and the entrance made worthy of the other improvements. The new school buildings had also justified expectations, and he ventured to say that in no kindred institution would a

student find better opportunities for work. The hospital generally, indeed, was in a condition of which they might well be proud. Touching upon some important changes in the staff, he alluded with feeling regret to the death of their former colleague and good friend, Dr. Hyde Salter. It was a matter for satisfaction, however, that in the hands of Dr. Headland the interests neither of the hospital nor of the school were likely to suffer. During the past year, too, Dr. Silver had been promoted to the grade of "full" physician; and the vacancy thus created had been filled by the election of Dr. G. Vivian Poore, in whose place Dr. Mitchell Bruce had been appointed registrar. Another excellent appointment had been made by the election of Mr. Fairbank to the post of surgeon-dentist. In consequence of his election to the Presidency of the College of Surgeons, Mr. Hancock had resigned his post of senior surgeon to the hospital, but Dr. Pollock was happy to add that he had consented to fill the important office of Lecturer on Clinical Surgery, so that the loss to the hospital was a gain to the school. The vacancy on the surgical staff will lead to the promotion of Mr. Canton and Mr. Barwell, and the teaching of practical anatomy and physiology had been strengthened by the appointment of most able assistants in those departments. Dr. Pollock concluded by warmly thanking the Chairman for the kindly interest he had always taken in the welfare and prosperity of the school.

The prizes and certificates were then presented to the successful students in the following order:—

WINTER SESSION 1871-72.

Governors' Clinical	Medal (Silver)	F. W. Gray.
Anatomy (Senior)	Medal (Silver)	J. Stevenson.
	Certificate	A. D. Mercer.
„ (Junior)	Medal (Bronze)	H. Wickers.
	Certificate	R. W. Jolly.
Physiology (Junior)	Medal (Bronze)	J. Cantlie.
Chemistry	Medal (Silver)	H. Wickers.
Medicine (Senior)	Medal (Silver)	H. Donaldson.
	Certificates	E. J. Nix. A. W. Orwin.
„ (Junior)	Medal A (Bronze)	J. Couldrey.
	Medal B (Bronze)	L. Newnham.
	Certificates	G. Brown. A. D. Mercer.
Surgery (Senior)	Medal (Silver)	F. W. Gray.
	Certificates	E. J. Nix. A. W. Orwin.
„ (Junior)	Medal (Bronze)	E. Sall.
	Certificates	J. Stevenson. J. Couldrey.

SUMMER SESSION 1871.

Llewellyn Scholarship	.....	A. Stephens.
Golding Scholarship	.....	G. Brown.
Botany	Medal (Silver)	G. Brown.
	Certificate	J. Clarke.
Materia Medica	Medal (Silver)	J. Clarke.
	Certificate	G. Brown.
	Certificates	G. Davies. A. D. Mercer.
Practical Chemistry	Medal (Silver)	G. Brown.
	Certificate	A. D. Mercer.
Midwifery	Medal (Silver)	E. J. Nix.
	Certificate	A. W. Orwin.
Pathology	Medal (Silver)	H. Donaldson.
	Certificates	E. J. Nix. A. W. Orwin.
Forensic Medicine	Medal (Silver)	H. Donaldson.
	Certificate	E. J. Nix.
Psychological Medicine	Prize	E. J. Nix.

A short address by the Chairman, and the usual vote of thanks, brought the proceedings to an end, which were throughout characterised by the greatest enthusiasm.

At the conclusion of the ceremony we were enabled to inspect the alterations and improvements alluded to by Dr. Pollock in his report, and we certainly think that they form a subject for great congratulation. Those who have known this hospital in former years would scarcely recognise it now, so greatly is its appearance altered and improved. The entrance hall has been altered and a new staircase has been erected, at the sole expense of Mr. Stuart, one of the governors, who generously gave £5000 for the purpose. A handsome Grecian portico, supported by Etruscan columns, has been erected over the principal entrance in Agar-street, and passing through this one enters a very handsome and chaste circular vestibule, also in the Grecian style, and beyond the vestibule is the grand staircase, the great feature of the improvements. This staircase is like the one at King's College Hospital, but on rather a smaller scale. It goes from the bottom to the top of the hospital, winding round a square well, which is lighted from the top by a sunlight. The staircase is wide, the gradient is very easy, and the hand-rail, balustrades, and other adjuncts are massive and handsome. A lift has also been placed for the service of the wards, and has proved a great convenience. The wards themselves (which are amongst the best ventilated in London) are now undergoing, seriatim, a thorough cleansing and whitewashing. The space occupied by the old staircase has been employed for the erection of lavatories and other necessary conveniences for the patients. The school-buildings have also been much improved. The lecture theatre and post-mortem and dissecting-rooms have each been renovated, and a very convenient physiological laboratory has been added.

All the arrangements, both for the treatment of patients and the teaching of pupils, are now first-rate. The governors of the hospital have generously resigned all share in the school-fees, an example which the governing bodies of other hospitals would do well to imitate. The school is to be congratulated on the fact that Mr. Hancock, who, on his election to the honour of President of the College of Surgeons, has thought fit to resign his appointment of surgeon to the hospital, will, nevertheless, remain attached to the school as teacher of clinical surgery, where his services will doubtless prove as valuable in the future as they have been in the past.

THE EXAMINATIONS AT THE COLLEGE OF SURGEONS.

To the Editor of THE LANCET.

SIR,—In the last number of your journal there is an analysis of the candidates who have been passed and rejected at the primary or anatomical examination of the College of Surgeons. This analysis presents so remarkable a contrast between the proportion of passes of candidates from one hospital and that of all the other hospitals, that it cannot fail to challenge attention.

It appears that the proportion of rejections from all the London hospitals, excepting Bartholomew's, is as nearly as possible one in three, whilst that from Bartholomew's is less than one in six.

How is this to be explained? Is it to be concluded that the anatomical teaching at Bartholomew's is twice as effective as at any other school?

Surely there is something here worthy of investigation. Can the Council of the College who have got up the return account for this striking contrast? Or can the candidates who are the subjects of it offer from their experience in their studies, or at the examining-tables, any facts which can elucidate this enigma to

July, 1872. A FORMER TEACHER OF ANATOMY?

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen, having passed the required examinations for the diploma, were duly admitted Members of the College at meetings of the Court of Examiners on Monday, Tuesday, and Wednesday last:—

Appleyard, John, Burnley.
Baker, Charles E., Shrewsbury.
Balkwill, William Edward, L.S.A., Kingsbridge, Devon.
Barber, Oliver, L.S.A., Sheffield.
Barfoot, George Harry, Leicester.
Bartleet, Edward, Connaught-square.
Beadnell, George David, L.R.C.P. Edin., Newton Abbott.
Bell, George Pearson, Leicester.
Bellingham, Joseph, Dudley.
Blackburn, Charles W. A., Mauritius.
Blackshaw, Thomas Wilkinson, Stockport, Cheshire.
Bosson, George, L.S.A., Barnstaple, Devon.
Bracey, Herbert Richard, L.S.A., Birmingham.
Brown, William, Carlisle.
Colgate, Henry, Eastbourne.
Cripps, William Harrison, Mitre-court, Temple.
Davies, George Augustus, L.S.A., Newport, Monmouthshire.
Davies, John Hopkyn, L.S.A., Lampeter, South Wales.
Dodd, Thomas Anthony, Newcastle-on-Tyne.
Duncan, Andrew, L.S.A., Henrietta-street.
Dunn, William Allison, L.S.A., Louth, Lincoln.
Eastes, Thomas, L.S.A., Folkestone.
Edge, Abraham Matthewson, Manchester.
Elam, Shrofield, L.S.A., Woburn-square.
Eskell, Maurice Moses, Grosvenor-street.
Fagg, Thomas H., L.R.C.P. Lond., Bayswater.

Finzi, Judah Moses, Gower-street.
Glenny, George Wallis, Barking, Essex.
Godlee, Rickman J., Whitbamstow.
Grant, Gordon Milne, Dover.
Greaves, Frank, L.S.A., Eastleigh, Hants.
Griffiths, Alfred Vavasour, Stone, Staffordshire.
Griffiths, William E., L.S.A., Kensington.
Hall, James Thomas, Ashbourne.
Hartridge, Gustavus, L.S.A., Shrewsbury.
Hawkins, Henry Baillie, Topcliffe.
Hey, Edward, Leeds.
Holder, William, L.S.A., Hull.
Imbach, Francis, M.B. Edin., Liverpool.
Lawton, Herbert A., L.R.C.P. Lond., York-road.
Lucas, Thos. D'Arcy, M.D. M'Gill Coll., Stratford, Canada.
Lungley, Frank, L.S.A., Lewis
Madden, Edward Monson, M.B. Edin., St. John's-wood.
Massingham, John Payne, Warrington.
M'Conkey, Thomas Clarkson, M.D. M'Gill Coll., Ontario.
Monro, Charles Edward, Hurstpierpoint.
Morgan, John Hammond, Sussex-place.
Morgan, William Lewis, L.R.C.P. Lond., Merthyr Tydfil.
Morley, John Lacy, Leamington.
Murray, Thomas, Indian Army.
Murrell, Clement F. F., L.S.A., Great Yarmouth.
Nankivell, Charles A., Torquay.
Northey, Gilbert William, Tavistock.
Otley, Walter, Twickenham.
Owen, Albert I., Holloway.
Paramore, Richard, L.S.A., Hunter-street.
Pearcy, William, Bermondsey.
Phillpot, Joseph Henry, Croydon.
Poignaud, Malcolm, Jersey.
Reid, Frank, L.R.C.P. Edin., Torrington-square.
Richards, John Edward, L.R.C.P. Lond., Ruabon, North Wales.
Risdon, George Owen, Dolton, North Devon.
Robinson, Mark, Portsmouth.
Rogers-Harrison, Napoleon A., L.R.C.P. Lond., Lansdowne-rd.
Sayer, Charles Wathen, L.S.A., Yatton, Somerset.
Scott, John Walter, L.S.A., Torpoint, Cornwall.
Smithorpe, Alfred Milward, L.R.C.P. Edin., Tamworth.
Smith, George Cockburn, L.R.C.P. Edin., Winchester.
Smith, George F. K., L.S.A., Northampton.
Stirling, Edward Charles, Queen's-gardens.
Strother, William H. H., L.R.C.P. & L.M. Edin., Darlington.
Taylor, Seymour, Barton-on-Trent.
Toone-Smith, Thomas W., M.D., Austrey, Warwick.
Turner, George, L.R.C.P. Lond., Portsea, Hants.
Utting, James, L.S.A.
Verley, Reginald Louis, L.R.C.P. Edin., Gower-street.
Walker, William Newman, L.S.A., Tollington-park.
Wallace, William, Kingsland.
Ward, Joseph, Warwick.
Warne, William Colston, M.B. Edin., Rochester.
Welchman, Edward, L.R.C.P. Lond., Winchester.
Withers, Robert, Stoke, Devonport.

The following gentlemen passed the primary examination in Anatomy and Physiology on the 18th inst.:—

J. H. Gilmour, J. Crossman, J. T. Jones, and A. Turle, St. Thomas's Hospital; E. A. White, F. H. Elliott, and J. H. Badcock, University College; H. M. Barker, H. H. Bathe, and A. K. Bissill, St. Bartholomew's Hospital; C. S. Cauble, Dublin; A. Carter, E. S. Newton, and J. H. Paley, Guy's Hospital; A. F. Hawkins, Leeds; H. H. Hughes, King's College; Thomas D'Arcy Lucas, Canada; H. E. Paxton, London Hospital; J. M. Raye and G. P. Stockwell, St. Mary's Hospital.

Of the 117 candidates examined on the 16th, 17th, and 18th inst., 44 failed to satisfy the Court, and were referred to their anatomical and physiological studies for three months.

APOTHECARIES' HALL. — The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on the 18th inst.:—

Bakwell, William Edward, Kingsbridge, Devon.
Dunn, William Allison, Louth, Lincolnshire.
Rogers-Harrison, Napoleon Augustus, Lambeth.
Graham, Arthur, Castle-street, Leicester-square.
Lawton, Herbert Alfred, York-street, Borough.
Taylor, Herbert Price, New-cross.

As Assistants in Compounding and Dispensing Medicines:—

Bowker, William, Bolton, Lancashire.
Platt, J. Wright, New Delph, Saddleworth.
Walton, M. Foulds, Sowerby-bridge, near Halifax.

On the same day the following gentleman passed his First Professional Examination:—

Parker, George Williams, St. Thomas's Hospital.

BY submarine telegraph we receive information of the death of the Duc de Guise (son of the Duc d'Aumale), who expired on Thursday morning of scarlatina of an abnormal type, being unaccompanied by sore-throat, but marked by extensive swelling of the inguinal glands. The Duke's medical attendants were Drs. Gueneau de Mussy and Blache.

His Royal Highness the Prince of Wales has graciously consented to become the patron of the Hospital for Diseases of the Throat.

THE seventeenth annual festival of the Poplar Hospital was held last week at the Cannon-street Hotel.

Medical Appointments.

ATKINSON, C. S. A., M.R.C.S.E., has been appointed Medical Officer for District No. 6 of the East Ashford Union, Kent.
BROWNE, H. L., L.R.C.P.Ed., M.R.C.S.E., has been appointed Honorary Surgeon to the West Bromwich District Hospital.
CATON, R., M.D., has been appointed Lecturer on Physiology at the Liverpool Royal Infirmary School of Medicine, vice A. T. Houghton Waters, M.D., appointed Lecturer on the Principles and Practice of Medicine.
COUGHTREY, M., M.B., has been appointed Demonstrator of Anatomy at the Liverpool Royal Infirmary School of Medicine.
DUNBAR, H., M.D., has been appointed Parochial Medical Officer and Public Vaccinator for Kirkmaiden, Wigtonshire, vice Trotter.
GUNNING, J. St. C., L.R.C.S.I., has been appointed Resident Medical Officer to the Ramsgate and St. Lawrence Royal Dispensary and Seamen's Infirmary, vice E. Walford, M.R.C.S.E., resigned.
HACKNEY, A. H., M.R.C.S.E., has been appointed Medical Officer for the St. Mary District of the Parish of St. Marylebone, vice Richard L. Shone, M.R.C.S.E., appointed Assistant Medical Officer to the Essex Lunatic Asylum, Brentwood.
HALL, J., M.B., C.M., L.R.C.S Ed., has been elected Medical Officer and Public Vaccinator for the newly arranged Sharples District of the Bolton Union, Lancashire.
HEGARTY, J., M.D., has been appointed Medical Officer, Public Vaccinator, and Registrar of Births &c., for the Cloonbur No. 1 Dispensary District of the Oughterard Union, Co. Galway, vice Coleman.
KER, H. B., L.R.C.P.Ed., L.M., M.R.C.S.E., has been appointed Medical Officer of Health to the No. 2 District of the Rowley Parish.
KENNY, J., L.R.C.S.I., has been elected Medical Officer and Public Vaccinator for the Whitwell District of the Worksop Union, Notts, vice F. C. Crosslé, M.B., C.M., resigned.
KENT, E. J., L.F.P. & S. Glas., has been appointed Medical Officer for District No. 5 of the East Ashford Union, Kent.
LAVERICK, J. V., L.R.C.P.L., L.R.C.P.Ed., L.F.P. & S. Glas., has been elected Medical Officer and Public Vaccinator for the Lythe District of the Whitby Union, vice R. Dowell, M.R.C.S.E., resigned.
LEONARD, W., M.R.C.S.E., has been appointed Resident Surgeon and Apothecary to the Western General Dispensary, vice Wm. Geo. Tiley, M.R.C.S.E., resigned.
LLOYD, R. E., M.B., has been appointed Resident Medical Officer to the Fever Hospital and House of Recovery, Cork-street, Dublin, vice R. H. Porter, L.A.H.Dub., deceased.
MILLER, J., M.D., has been appointed a Surgeon to the G Division of the Metropolitan Police, vice W. Taylor, M.R.C.S.E., deceased.
MILLER, J. A., M.R.C.S.E., has been appointed a Surgeon to the G Division of the Metropolitan Police.
PICKERING, T. F., L.R.C.P.Ed., L.R.C.S.Ed., has been elected Medical Officer and Public Vaccinator for the newly arranged Little Bolton No. 2 District of the Bolton Union.
RIX, R. A., M.R.C.S.E., L.M., has been appointed Surgeon to the Chontales Consolidated Mines, Nicaragua.
ROSS, D. M'C., L.K.Q.C.P.I., L.R.C.S.I., has been elected Medical Officer to the Workhouse, Monaghan Union, vice Wm. Temple, M.D., deceased.
SANSOME, T., M.R.C.S.E., has been appointed Honorary Surgeon to the West Bromwich District Hospital.
SUTCLIFFE, H., M.R.C.S.E., has been appointed Honorary Surgeon to the West Bromwich District Hospital.

Births, Marriages, and Deaths.

BIRTHS.

COLAN.—On the 17th inst., at Shoeburyness, the wife of Hunter Alex. Colan, Assistant-Surgeon Royal Artillery, of a son.
LAMB.—On the 18th inst., at Price-street, Birkenhead, the wife of Joseph Lamb, M.R.C.S.E., of a son.
MCNALTY.—On the 19th inst., at Napier-street, Stoke, Devonport, the wife of G. W. McNalty, M.D., Staff Assistant-Surgeon, of a son.
STANLEY.—On the 20th inst., at the Curragh, Ireland, the wife of St. John Stanley, Surgeon 1st Batt. 25th Regiment (the King's Own Borderers), of a daughter.
TYLECOTE.—On the 16th inst., at Sandon, Staffordshire, the wife of J. H. Tylecote, M.D., of a daughter.
WILSON.—On the 22nd inst., at Alton, Hants, the wife of Thomas Wilson, L.R.C.P.Ed., L.R.C.S.Ed., of a daughter.

MARRIAGES.

HELSDON—NICHOLS.—On the 18th inst., at Southroppe, Fred. A. Helsdon, M.R.C.S.E., of North Walsham, to Elizabeth Cross, only daughter of John Nichols, Esq., of Southroppe Hall, Norfolk.
SMITH—SMITH.—On the 18th inst., at the Parish Church, Marske, James Broom Smith, Esq., of Loftus in Cleveland, to Maud, youngest daughter of the late Rev. William Henry Smith, M.A., Rector of Hinderwell, Whitby, Yorks.

DEATHS.

CALDER.—On the 25th ult., Gillies Calder, M.R.C.S.E., of Warbleton, Sussex, aged 57.
CUMMING.—On the 16th inst., W. S. Cumming, M.R.C.S.E., of Limehouse, aged 78.
EGAN.—On the 28th ult., Edward Egan, M.R.C.S.E., of Aungier-street, Dublin, aged 53.
JONES.—On the 12th inst., E. Jones, M.D., of Newtown, Montgomeryshire, aged 57.
LACEY.—On the 23rd ult., John Lacey, L.S.A.L., of the Wyle Cop, Shrewsbury.
LAMBART.—At Steamer Point, Aden, R. R. Lambart, L.R.C.S.I., Staff Assist.-Surgeon Army.
WILLIAMS.—On the 6th inst., at Tymelyn, Llangeitho, D. F. Williams, M.R.C.S.E., of Reynoldston, Gower, in his 32nd year.

Medical Diary of the Week.

Monday, July 29.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

Tuesday, July 30.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
GUY'S HOSPITAL.—Operations, 1½ P.M.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
ROYAL FREE HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 3 P.M.

Wednesday, July 31.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.
ST. MARY'S HOSPITAL.—Operations, 1½ P.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M.
ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M.
KING'S COLLEGE HOSPITAL.—Operations, 2 P.M
GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.
LONDON HOSPITAL.—Operations, 2 P.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2 P.M.
CANCER HOSPITAL.—Operations, 3 P.M.

Thursday, Aug. 1.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Friday, Aug. 2.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, Aug. 3.

HOSPITAL FOR WOMEN, Soho-square.—Operations, 9½ A.M.
ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
ROYAL FREE HOSPITAL.—Operations, 2 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M.
KING'S COLLEGE HOSPITAL.—Operations, 1½ P.M.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

Notes, Short Comments, and Answers to Correspondents.

SPIRITUALISM AMONG THE CELESTIALS.

THERE is a story, known possibly to many of our readers, of a stranger visiting a town who required the attendance of a doctor. He inquired, and was told the name and residence of the most popular of the local celebrities, and sallied forth in the evening to reconnoitre. He readily found the practitioner's residence, but was shocked to find it surrounded by numerous ghostly beings. Having learnt that these were the spirits of deceased patients, he hurried on until he came to a surgeon's house, round which a solitary spirit hovered. The stranger determined at once to consult a doctor who was so fortunate as to have lost only one patient, but was made profoundly melancholy by the subsequent discovery that he had never had but that one patient. Dr. Dudgeon, in his Report of Peking Hospital, tells us that the spirits of dead patients are supposed by the Chinese to hover and sit around the door of their unfortunate physicians, and it is possible that the foregoing story may have derived its origin from this source. Patients in search of a doctor resort to the temple of Ching-hwang, himself a spirit unlucky enough to have been "cured dead" by the faculty. He is surrounded by his attendants, who also have been sent to the tomb of the Capulets before their time. These patients or their friends are directed to a practitioner whose door is comparatively free of such spirits of departed patients.

A Surgeon.—Much will depend upon the available means of the patient. A bracing climate is to be preferred in such cases.

ERYTHROXYLON COCA.

To the Editor of THE LANCET.

SIR,—In answer to "Ishmael's" question respecting the erythroxylon coca, I beg to say that the best is obtained from Bolivia, being a favourite beverage in that country. Here it is about 6s. per pound. I use it as an infusion or mixed with ordinary tea, or in the shape of essence.

Yours faithfully,

Leicester-street, Regent-street, July 22nd, 1872. RICHARD VERITY.

SANITARY STATE OF WALSALL.

DR. DREWRY, the medical officer of health for the borough of Walsall, has directed special attention in a recent report to the spread of small-pox during the past month. It appears that out of 195, the total number of deaths in June, 127 resulted from small-pox. He attributes this very high mortality to various general local causes which favour the spread of any epidemic, and which are peculiarly bad at Walsall—to wit, defective sewerage arrangements in overcrowded courts, which are but ill supplied with water. The special causes seem to have been even worse at Walsall than elsewhere, such as the enormous number of unvaccinated or imperfectly vaccinated children, and the overcrowding and difficulties in the way of isolating cases of infectious disease. We are glad to notice that an Epidemic Hospital, now in course of completion, was expected to be almost immediately ready for habitation—not before it was wanted, we should say.

Mr. Wm. Macewen.—We regret having omitted to acknowledge the receipt of our correspondent's paper, which duly came to hand.

UNQUALIFIED ASSISTANTS.

To the Editor of THE LANCET.

SIR,—I am amused by the letter of "A Qualified Assistant" in your last number. Like "R. H. L.," he seems to think that the *summum bonum* of life is to be a principal. Is he not aware that there are two sides to every question? Let me tell my story. I am a principal. I have a large country practice, large as to extent, that is, not in respect of income. I hold a union district and a club. I have a sick wife and four young children (I might say five, for I very shortly expect a fifth). I am myself in bad health, the result of having formerly lived in an unhealthy climate. I am also crippled for life from an accident I met with two years ago. Now, in consequence of my state of health, I am unable to work my practice without an assistant, although my yearly receipts barely afford me the means of subsistence. I am, therefore, obliged to seek the aid of an unqualified assistant, thankful to obtain help at as cheap a rate as possible. Now I have reason to know that mine is not an extreme or singular case. I only wish I could think so. It does not follow as a necessary consequence that because a man is obliged to keep an assistant, he is in flourishing circumstances. With many it is an absolute necessity, although their income does not warrant such an expense, and on the same principle that no man will drink sour swipes who can get "Bass." Your correspondent may rest assured that no principal will employ an unqualified assistant who can afford to pay one with a qualification. But let him remember "all is not gold that glitters." I sincerely trust he may speedily become a principal himself, and have the good fortune to be able to employ an assistant himself from choice, and not from hard necessity.

I remain, Sir, yours, &c.,

July, 1872. A POOR PRINCIPAL.

To the Editor of THE LANCET.

SIR,—In your impression of last Saturday I noticed two articles relating to unqualified assistants.

While fully concurring in the justice of the remarks made in your leading article, I think that, as an unqualified assistant, it is but right to say a few words on their behalf. Many of that class, I believe, like myself, only take assistancies in order to recruit their resources, and prepare at as early a date as possible to finish their curriculum. Therefore if medical men are prohibited from employing them, a great number of present medical students would be debarred of the means of continuing in the profession. Startling cases of malpractice, like the one quoted, I regret to say, sometimes occur; yet it is hard that a whole body should suffer for the incompetence of a few. Again it is stated that the unqualified assistant is an evil through lowering the scale of fees; but I have never yet been in a practice where the charge for the attendance of the assistant was less than for that of the principal.

With respect to the letter of "A Qualified Assistant," regarding their remuneration, and desiring to petition the licensing bodies not to countenance the employment of unqualified men, I would suggest to him that he has not always been qualified; indeed, from the tone of his letter, I should imagine that he has only just passed, and would advise him not to consider himself of so much importance, as few would be likely to value him by his own standard. Perhaps he will kindly inform us whether or not he himself was at one time an unqualified assistant.

I would add that so long as the access into the profession with respect to the preliminary examination in Arts is so simple, the more unqualified men there will be, as gentlemen would not be willing to enter upon the by no means light duties of an assistant until they had at least passed their preliminary.

I am, Sir, faithfully yours,

July, 1872. UNQUALIFIED.

F. M., (Filey, Yorkshire.)—The operation alluded to is generally successful. It sometimes fails, however, from some slight causes of a local kind, or from some temporary condition of ill-health. There are other methods of procedure; but we must refer our correspondent to his own medical adviser, as it is contrary to our practice to nominate anyone.

Mr. Oliver Pemberton's communication has been received.

An Intending Candidate.—Apply to the Secretary of the Apothecaries' Company.

MEDICAL ETIQUETTE.

To the Editor of THE LANCET.

SIR,—Mr. Moses Taylor neither answers my question nor denies the truth of my charges, but bases his justification upon my previous unprofessional acts towards himself. Now this I protest against as being false, and once more challenge him publicly to prove such statement; and in the event of his failing to do so, I will leave the profession to judge of its validity. Mr. Taylor evades further correspondence with me, under the pretence of treating my communications with contempt. If he will kindly condescend to treat me thus personally, I shall be better pleased.

In closing this correspondence, I would solicit the independent judgment of the profession as to what steps I should take when placed in a similar position, since Mr. Taylor, while publicly acknowledging his conduct to be unprofessional, signifies his intention of continuing the same.

I am, Sir, yours faithfully,

Cannock, July 14th, 1872. J. CAMPBELL MACAULAY.

FEES TO REGISTRARS OF BIRTHS AND DEATHS.

A Registrar writes, asking us to advocate the claims of his class to increased remuneration. He thinks, quite naturally, that as there is a Bill now before Parliament for amending the Registration Acts, this is the proper time for improving the pay of the registrars. He sends us a copy of the form in which every entry of death has to be recorded, and we observe that there are ten columns for each entry, each of the ten facts having to be recorded according to certain fixed rules, the least transgression of which, if not discovered and corrected in time, might perhaps invalidate the record for legal purposes. His pay is at the rate of 2*s.* per entry for the first twenty entries made annually, and 1*s.* per entry for all beyond twenty. There are, of course, other exceptional fees; but they do not amount to much, except in town districts. We are distinctly of opinion that the pay of the registrars should be increased, if for no other reason, at least for this one, that although many of the existing registrars are in every way competent for their duties, a large proportion are below the standard of efficiency which we deem necessary; and as better pay alone will draw the better men into the work, we are in favour of the better pay.

Mr. J. Curtasll should refer to the Medical Directory. It is beyond our province to express an opinion on the questions put to us, and it is equally beyond our power to return private answers to correspondents.

Dr. Barlour's letter shall be inserted next week.

PESHAWUR.

To the Editor of THE LANCET.

SIR,—In a letter which you were good enough to publish in THE LANCET of June 22nd, I showed that the usually accepted explanation of the cause of the unhealthiness of Peshawur was untenable. As some points of interest in relation to the etiology of fever are involved in this question, I ask permission to add a few words on the subject.

Some of the best sanitary authorities despair of the possibility of Peshawur being made healthy, and the Government have been advised to abandon the post, and withdraw the European troops to the left bank of the Indus, where a site for a new cantonment has actually been selected. Those who advise this course, the adoption of which would involve a vast expenditure for new barracks and other buildings, do so mainly on the ground that the topographical position of Peshawur cuts off all hope of the troops ever being healthy there. "The whole of the Peshawur valley," they say, "is more or less a swamp, surrounded by lofty mountains," and cannot be made healthy. I have already shown that, notwithstanding its supposed disadvantages of position, parts of the valley are so healthy as to produce some of the finest men to be found in India. But as many persons deny the applicability of arguments drawn from observations on the native population to European troops, I wish to call attention to a fact which shows conclusively that even a British regiment may enjoy a high standard of health in the Peshawur valley. At the station of Naushera, situated in the valley, and only eighteen miles from the Peshawur cantonment, the death-rate of the troops in six years of the decade ended in 1869 was under 10 per 1000, or about the average death-rate of the troops in England. The mean death-rate of the whole ten years was only 14·99 per 1000, a rate which will be considered singularly low when it is remembered that regiments broken down in health at Peshawur are transferred for change of air to Naushera. Considering the proximity of the station to Peshawur, and the constant intercourse between the two places, Naushera has enjoyed a remarkable immunity from epidemic cholera. There appear to have been only eight cases of the disease there altogether since the station was established upwards of twenty years ago. The topographical position of Peshawur and that of Naushera are practically the same, and yet in one the troops are almost as healthy as they would be in England, while in the other they suffer almost continually from destructive epidemics. What is the cause of this difference? I am not in a position to discuss this question exhaustively; but a few observations will not be out of place. There are only two points of difference between the stations which appear to me to be important:—

1st. Naushera stands on a bare, dry, arid plain, destitute of herbage, with a few small trees recently planted, trying to establish themselves, and requiring constant watering to keep them alive. Peshawur when first occupied was similarly bare. It is now well furnished with trees, and the prettiest gardens in India are to be found there. This difference is due to the difficulty of obtaining water at Peshawur, and the facility of obtaining it at Naushera, as nothing will grow at either place without artificial irrigation, owing to the dryness of the subsoil and the scantiness of the rainfall. In Naushera water has to be lifted from wells from a depth of thirty feet; in Peshawur it flows along the surface in ducts led from the Bara river. This is the most obvious and tangible difference between the two stations, and many medical officers believe that it explains the difference that exists between them in relation to health, and they recommend accordingly that the ducts should be closed, and all irrigation stopped. They recognise the fact that the closure of the ducts involves the death of the fine shade-giving trees, and the destruction of the beautiful gardens that so charm the eye of the visitor from dreary deserts like Mianmir and Naushera. But health, they say, is the first consideration, and that we must do without flowers and trees, since the conditions essential to their growth are incompatible with the health of the troops. But are they really incompatible? Are there any trustworthy facts to show that irrigation to an amount not injurious to English flowers, and cabbages, cauliflowers, turnips, &c., is prejudicial to health? There may be such facts on record, though I am not aware of their existence; but I hope that the stoppage of irrigation at Peshawur will not be enforced until some definite proof has been obtained that irrigation as recently practised is really prejudicial to health.

2nd. There is a great difference as regards water-supply. At Naushera it is obtained exclusively from wells; at Peshawur partly from wells, but chiefly from the filthy gutters described by Dr. Morton. It is difficult to determine the effects of the use of impure water with any approach to exactness among a free community; but the following facts, which I ascertained after personal inquiry on the spot, go far to show that Peshawur fever is mainly propagated through the medium of water. A Parsi merchant from Bombay went to Peshawur in 1861 to set up in business. Shortly afterwards he began to suffer severely from the endemic fever. Part of his business consisted in the manufacture of soda water, and in order to get pure water he had to sink a well. He had one sunk on his own premises, striking water at a depth of seventy feet from the surface of the ground. The well has been carefully kept ever since, and has been the sole source of supply for the merchant and his family. He has had six children born at Peshawur; he has been married twice, his first wife having died in childbirth. This man and his family have lived for nine years at Peshawur, perfectly free from fever, without ever having had occasion to consult a medical man, and he told me that he considered Peshawur one of the healthiest places he had ever been in. The immunity of his children from fever is very remarkable, considering how prone young persons are to suffer from fever and spleen disease. I also found that the post-master, a European, who had been a patient of mine at Multan, where he used to suffer from fever, enjoyed entire immunity from it at Peshawur, as did his family also. On inquiry I ascertained that he was careful to use only water brought from the well of the Parsi merchant, who lived close by. Also a friend of mine, a cavalry officer, now in England, was quartered for two years in Peshawur, where he and his family remained quite free from fever. He, too, adopted special precautions to secure a supply of water from a pure source. He kept a mule for the express purpose of conveying it.

Facts like these, if taken in connexion with similar evidence obtained elsewhere, go far to show that impure water is the principal medium by which, not only cholera and diarrhœa, but malarious fever also, are diffused in Peshawur, and they appear incompatible with the idea that the fever is due to an atmospheric poison.

Your obedient servant,

July, 1872. A. C. C. DE RENZY, Surgeon-Major.

Mr. A. F. Bradshaw, (Simla.)—The best hand ophthalmoscope is one of the forms of what is called Liebreich's small instrument, and of these the one described by Mr. Brudenell Carter in a lecture in THE LANCET for Dec. 24th 1870, is the most portable and the most convenient for all purposes. The best instrument for sketching from is Mr. B. Carter's demonstrating ophthalmoscope, described in THE LANCET for Jan. 13th, 1872. Both the above may be obtained from Weiss or Hawksley. The binocular named is very difficult to master, and the attached lamp of the other instrument is objectionable, from its liability to heat the metal work, and to burn the fingers of the holder. The sphygmograph of Mahomet is very ingenious, but as yet can hardly be said to have established a practical working position. Marey's sphygmograph, as modified by Dr. Sanderson, and purchasable at Weiss's and, we believe, several other makers', is the most tried and reliable instrument.

Fusbos.—The law requires that to be able to recover for medical charges, one should be possessed of a medical qualification. We cannot at present refer to a case in point; but there can be no doubt about the law.

A DEFECT THAT WANTS REMEDYING.

To the Editor of THE LANCET.

SIR,—Some weeks ago I came from Manilla to London in a Scotch steamer, the passage occupying about fifty days *viâ* the Suez Canal. Now I wish to call your attention to the want of medical men on board some of these ships, thinking the question to be one of great importance.

The steamer in which I made the voyage is of about 2500 tons, and has a crew of nearly fifty men. She left London in the month of March, went out to China and Manilla, and returned to London in July, being out nearly four months. During the whole time there was no medical man on board, except when I took my passage from Manilla to London as a passenger. As there were many sick on board, I felt obliged to give them my services, and only mention that I did it gratis, never having received a word of thanks from the owners or the captain. I do not say too much when expressing my opinion that the sailors and firemen are little better than slaves during such a passage. The change of climate from a European winter into tropical heat is made within a few weeks; while the ship, having been constructed for a northern climate, is not at all adapted for the tropics. Most of the crew become affected with various diseases, and have only the captain, the mate, or comrades to look to for medical guidance, the consultation of a doctor in a harbour of China or the Philippine Islands for one day being of no service at all. The captain of the ship in question was a man who, himself sick, made a ridiculous abuse of his medicine-chest in treating himself, taking at one time the most antagonistic medicines. One man went out from London affected with a simple soft chancre, and was in a deplorable state when I saw him two months afterwards in Manilla, and I had much trouble in curing him. There were several men suffering from pleuritis; nevertheless they were obliged to work from the want of hands. A fireman worked every day with an orchitis. I had, of course, no authority to keep him from his work. Another fireman suffered from hemicrania, brought on by the intense heat of the engine-room while in the tropics. A cabin-boy, with heart disease, was also obliged to work hard. Without enumerating all the cases I observed during these fifty days on board the ship (I often had eight patients a day, and sometimes more), I only say that a medical man would have been fully occupied during the whole time, and it seems to me to amount to a crime that there should be no doctor on board such a ship. I therefore ask you and the English public the following questions.

1. Is there no law which ordains that a ship of this size (2500 tons), which is out four months, and has to undergo all changes of climate, should carry a medical man?

2. If there is none, is it not worth while agitating to obtain such a law? The owners of such vessels gain their bread at the cost of the health of their fellow-creatures, while the expense of carrying a young medical man is relatively very small.

Hoping this letter will draw attention to the subject,

I remain, Sir, yours truly,

Vienna, July 19th, 1872. ADOLF BERNHARD MEYER, M.D.

An Intending Candidate should apply to the Army Medical Department, Whitehall-yard. We do not think that the defect named would be held to disqualify, provided, of course, that its degree is no greater than that mentioned by our correspondent.

Mr. Waring-Curran, (Mansfield.)—We regret to say that our correspondent's letter, probably from having been very hastily written, is almost entirely illegible.

FELLOWS OF COLLEGES AND THE PUBLIC SERVICES.

WE have occasionally wondered why medical officers of the public services, who happen to be Fellows of the Royal Colleges of Physicians or Surgeons in the three kingdoms, do not have their appropriate letters placed after their names in the Army and Navy Lists. It will be conceded, we presume, that these titles are highly honourable to the possessors of them, and there seems to be no reason why they should not have the credit of them.

Only a Surgeon.—Certainly not. The schemes would not have any retrospective application. Unless the law were to be altered, any British qualifications would suffice; but they would have to be medical and surgical.

GENERAL SCOTT ON SEWAGE.

To the Editor of THE LANCET.

SIR,—The only novelty, and perhaps advantage, of General Scott's plan of dealing with sewage, appears to be the manufacture of Portland cement with the liberal aid of two old-fashioned precipitants. But it is well known that precipitation of the objectionable ingredients is one of the most difficult chemical operations, and that this arises partly from the feeble chemical affinities of these ingredients, and mainly from our own fault in adding an enormous volume of water to a relatively small quantity of solids. In fact, chemistry has yet to discover, and may never discover, an agent for the thorough separation of the foul constituents existing in sewage; at any rate the General does not indicate a step in advance in this direction. Moreover, the irrigation part of his scheme is, like all others of the same kind, open to the fatal objections, that it is not applicable to all soils, to all places, to all seasons, &c., and that it does not provide for the destruction of parasitic ova, or the germs of disease cast off from a typhoid or a cholera patient. In short, he leaves the evil very much where it was, and, I fear, always will be, unless the *fons et origo mali* is boldly attacked.

If the problem to be solved were how to create stinks in houses and streets, to generate and diffuse disease, to waste the valuable fertilising properties of human excreta, to pollute rivers and drinking water, to enrich civil engineers and contractors, and to burden ratepayers, no better scheme could be devised than that of churning urine, fæces, slops, soil water, and rainfall together into a black, pestiferous, and loathsome mixture by means of our watercloset system and its necessary adjuncts.

I venture to maintain that the prevailing mode of dealing with human alimentary exports is wrong from beginning to end, and that it largely multiplies the evils it vainly attempts to remove. If prevention be better than cure in opposing disease, it is no less so in the struggle against the sewage difficulty. The real desideratum is a plan for collecting, deodorising, and speedily removing excrement from our houses, and returning it to the starving soil, without using water as the vehicle. The dry system, in my opinion, is *the only sound one in principle*, and has fewer scientific objections than any other. It has proved eminently successful on a small scale, even when severely tested; whilst the admitted difficulties that may attend its application to large populations can hardly be recognised as insuperable in these days of engineering exploit.

I made a few observations in this strain at the Stafford House meeting; but General Scott rebuked me by remarking that "English gentlemen and ladies" would be shocked to use anything else but watercloseta, and Mr. Rawlinson exposed my ignorance by telling us that sewage without fæces and sewage with fæces were substantially the same articles. When sanitarians talk sentiment and air crotchets, there is small prospect of progress in undoing what is bad, or in doing what is good. I could, had I seen fit, have instanced the very house in which they stood as a witness against their pet plan.

Two years since a sick servant reported to me that the steward's room had so bad a smell that the windows had to be kept open night and day. On examination, a rat-hole leading directly into a drain was discovered at the bottom of a cupboard. A further investigation showed that the drains were old and defective throughout. Two months and nearly as many thousand pounds were spent in the work of renovation. Further, only four hours before I was instructed in the tastes of English gentlemen and ladies in this matter, the unmistakable odour of sewage gas issuing from a closet not far from where General Scott spoke made known to me that the enemy had again broken loose. An immediate search was made, and a large hole found in the pipe below the pan. Even now, in a palace, with drains unequalled for their mechanical completeness, and with Condy's fluid stored in every closet and freely used by each visitor thereto, the only safeguard the inmates have from stink, from disease, and perhaps from death, is a layer of water in the valves. Surely this slender and precarious defence from nuisance and danger is in itself a forcible argument against existing arrangements, and a strong reason why we should, in no "unEnglish" fashion, strike at the fountain-head of the mischief.

I am, Sir, yours, &c.,

Hertford-street, May-fair, July, 1872. GEO. MOORE, M.D.

*** Dr. Moore's letter is full of fallacies. It has not been shown that irrigation cannot be applied to all soils or in all seasons, nor that it fails to render harmless parasitic ova and germs of disease. Whatever the result, it is a practical truth that educated people are not likely to give up the use of watercloseta. So also it is not "sentiment," but fact, that the presence of fæcal matter makes very little difference in the foulness of sewage, and it is not proved that it contributes anything to the dangerous qualities of sewer air. Defective sewers and drains afford no argument against the use of those which are properly constructed and kept in proper order; and that the expense of their construction affords no guarantee of perfection, is proved by the cases cited. No house should depend upon a water valve for the exclusion of sewer gas, and none need do so. The use of Condy's fluid ought not to be necessary in a well-constructed house, much less in a palace.—ED. L.

Doubtful.—A L.R.C.P. Lond. cannot rightly do so either by courtesy or otherwise; besides, he would in so doing violate a bye-law of his own College.

C.—We quite agree with our correspondent's remarks on the paragraph in question.

THE PRICE OF FOOD.

Apropos of the present price of food—a question which is gradually assuming greater importance in connexion with the dearness of fuel,—an able and interesting article appears in the *Newcastle Daily Chronicle* of the 23rd inst. A contrast is therein drawn between the cost of various articles of ordinary diet in 1822 and 1872 respectively, the result of which is, roughly, that the price of butcher's meat and of dairy produce generally appears to have advanced about 100 per cent., whilst that of most kinds of colonial produce has considerably diminished.

Chirurgus.—Two months.

K. Q. X.—1. Dr. Budd has published instructions for the management of the sick-room and the prevention of infection.—2. That is a matter for personal consideration. The assistant under such circumstances is usually required to give at least a verbal promise in the presence of a witness. This is commonly sufficient; but there can be no objection to a written guarantee.

PROFESSIONAL ETHICS.

A CORRESPONDENT writes:—"If one durst send his dirty linen out, there would be many rich jokes! A. has a patient who wishes to see B. with him in consultation. A. says B. is his junior, A. being about 60, and B. about 55—*ceteris paribus*. Next time B. objects to A. because he is getting old (attenuated in mind and body). Where there is not a will there is not a way."

M.R C.S.—1. The engagement is binding after as well as before the death of the principal. Clearly the non-observance of it would reduce the value of the practice to any purchaser, and so injure the estate and family of the principal.—2. We do not clearly understand the question; but if it is meant, can a Poor-law appointment be sold by one medical man to another, we should decidedly say, No.

COMMUNICATIONS, LETTERS, &c., have been received from—Mr. Streatfeild; Lord and Lady Westminster; Dr. Hewitt; Mr. W. South; Mr. B. Clarke, Hampstead; Mr. Frankland; Dr. Cordwent, Taunton; Mr. J. Cary; Mr. Horne; Dr. De Renzy, Kensington; Messrs. Arnold and Sons; Mr. Cox, Darlington; Mr. Calder; Mr. Bennett; Mr. Mekal; Mr. Philip; Dr. Meyer, Vienna; Mr. Casey; Mr. Walker, Truro; Dr. Hogg, Woolwich; Mr. Bowman; Mr. Rowland; Mr. Harrison, Liverpool; Rev. Dr. Logie; Dr. Fairweather, Punjaub; Mr. Cassels; Mr. Denton; Mr. A. F. Bradshaw, Simla; Mr. Hayward, Liverpool; Mr. Coupland; Dr. Burchell; Mr. Jebb; Dr. Geo. Moore; Mr. Marrian; Mr. Kemp; Mr. Green, West Bromwich; Mr. Porter, Sheffield; Dr. Ker, Cradley Heath; Dr. Smart, Edinburgh; Dr. Tylecote, Sandon; Dr. W. Procter, York; Mr. J. B. Smith, Ferryhill; Mr. Summers; Mr. Rowland; Mr. Whiteley, Leeds; Mr. Smith, Bolton; Dr. Meldon, Twickenham; Mr. Weller; Mr. Clayton; Mr. P. Wilson, Oakham; Mr. W. Wallis, Dereham; Mr. Cooper, Beverley; Dr. Laverick, Hinderwell; Mr. Horton, Peterborough; Dr. Wilson, Alton; Mr. Geary; Mr. M'Gill, Carnarvon; Mr. Lamb, Birkenhead; Mr. E. Cockburn, Manchester; Mr. Wateraton, Sydenham; Dr. Booth, Church; Mr. Prestwich, Oldham; Mr. Verity; Mr. Cole; Dr. Franken, Munich; Mr. Southfield, Burton; Mr. Johnson, Ipswich; Mr. Marson, York; Mr. St. John Stanley, Curragh Camp; Mr. J. Whalley, Huntingdon; Mr. R. Gooch, Coleford; Mr. Oldfield, Hull; Mr. Cameron; Mr. Mason, Thorpe; Mr. W. A. Davies, Llanidloes; Mr. W. Brown; Mr. Trenchard, Ware; Mr. Darton, Wigan; Mr. Holmes; Dr. Anderson, Kingston, Jamaica; Mr. Tay; Mr. Graham, St. Leonards; Mr. Crane, Frome; Mr. Payne, Govan; Mr. Shaw, Brecon; Mr. Eastes; Mr. O'Keefe; Mr. Phillips, Horbury; Mr. Blake, Aberdovey; Dr. Williams, Pontypool; Mr. I'Anson; Mr. Steele, Halifax; Mr. Browne, Sheffield; Mr. Henry, Robertsbridge; Mr. Hoskings, Warwick; Mr. Biggs, Salisbury; Mr. Cooper, Leek; Mr. Oldacres, Tewkesbury; Mr. Atkinson, Caterham; Union Medical Man; J. C.; Unqualified; F.R.C.S.E.; Alpha; A Registered Practitioner; Fusbos; A former Teacher of Anatomy; C.; Doubtful; The Editor of the *Mansfield Advertiser*; Medicus; K. Q. X.; M.R.C.S.; A Subscriber of more than Twenty Years; Only a Surgeon; An Intending Candidate; F. M.; Chirurgus; A Poor Principal; &c. &c.

Newcastle Chronicle, Journal de Médecine, Huddersfield Chronicle, Bulletin de Statique Municipale, Tavistock Gazette, Western Mail, Harrogate Advertiser, Western Daily Mercury, Lincoln Gazette, Church Herald, Yorkshire Post, Cambridge Express, and *Parochial Critic* have been received.

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